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CATALOG



Oklahoma
Agricultural & Mechanical
College



1913

1914

STILLWATER, OKLAHOMA

OKLAHOMA
AGRICULTURAL AND MECHANICAL COLLEGE

TWENTY-SECOND
ANNUAL CATALOG

1912-1913

WITH ANNOUNCEMENTS FOR 1913-1914

STILLWATER, OKLAHOMA

Bulletin of the Oklahoma Agricultural and Mechanical College; Vol. IX, No. 51:
General Series 12.

Entered March 9, 1903, as second class matter under Act of Congress of July 16,
1894.

CHART OF OKLAHOMA A. & M. COLLEGE WORK

II

OKLAHOMA A. & M. COLLEGE

1. Students in Attendance on Courses of Study in— (2,100 students 1911-12)

Complete
Courses of Instruction

AGRICULTURE
ENGINEERING
DOMESTIC SCIENCE AND ARTS
SCIENCE AND LITERATURE
TEACHERS' NORMAL
BUSINESS TRAINING
SHORT COURSES FOR
FARMERS
DAIRYMEN
COTTON GRADERS
TEACHERS

Oklahoma

Agricultural and Mechanical

College

(The College, after 22 years of development consists of 70 professors and assistants, a student body of 2,100 attending the past year, a group of thirteen brick and stone buildings, a science equipment costing \$180,000.00, and 1,000 acres of land.)

2. The OUTSIDE Work for People of the State by— (150,000 citizens receive reports and hear lectures.)

Service
to Citizens

Agricultural Experiment Station tests and free publications.
Scientific research in behalf of Agriculture, and publishing results.
Lectures at Farmers' Institutes and other meetings.
Lectures at Teachers' Normals and Institutes, and publishing special literature.
Organizing Boys and Girls Clubs at home for the study of Agriculture, Domestic Science and related subjects.
Supplying lecturers and technical literature on Road Building, testing building material, etc.

THE NEW STATE IS OUR PARISH

COLLEGE CALENDAR

1913

- September 2, Tuesday—The Fall Term Opens.
October 7, Tuesday—The Short Course in Agriculture and Domestic Economy Opens—Twenty Weeks' Course.
November 27, Thursday—Thanksgiving Day, a Holiday.
December 20, Saturday—The Fall Term Closes.

1914

- January 5, Monday—The Winter Term Opens.
January 5, Monday—The Four Weeks' Buttermaking Course Opens.
January 5, Monday—The Two Weeks' Course in Ice Cream Making Opens.
January 12, Monday—The Winter Short Course for Farmers Opens.
January 17, Saturday—The Winter Short Course for Farmers Closes.
March 6, Friday—The Winter Term Closes.
March 6, Friday—The Short Course in Agriculture and Domestic Economy Closes; Graduation Day.
March 10, Tuesday—The Spring Term Opens.
April 22, Wednesday—The Annual Field Meet and the Annual Oratorical Contest.
May 2, Saturday—The Sixth Annual Northeastern Oklahoma Inter-scholastic Track and Field Meet.
May 15, Friday—The Annual Debate between Literary Societies.
May 16, Saturday—The Annual Senior Class Play.
May 24, Sunday—Baccalaureate Sermon.
May 27, Wednesday—Class Day.
May 29, Friday—Commencement Day, the Spring Term Closes.
June 2, Tuesday—The Summer School (including the Summer Normal, the Summer Session of the College, and Summer Business Course) Opens.
July 10, Friday—The Summer School Closes.

(The Faculty reserves the right, without further notice, to modify any announcement made in this catalog, if circumstances render such change necessary, and in any event they will be bound by it for only the year following the date of publication.)

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Assistant Professor of Chemistry

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Foreman of Shops

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Assistant in Sub-Freshman Department

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Assistant in Bacteriology

P. J. DAVIS, LL. B.

Assistant in Physical Training for Men and Assistant in English

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Assistant in Domestic Science

RALPH McBURNEY, B. S.

Assistant in Chemistry

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Assistant in Horticulture and Botany

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Assistant in Mathematics

F. R. BRADLEY

Assistant in Shops

C. W. SKINNER

Assistant in Shops

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Assistant in Domestic Arts

V. R. McBRIDE

Poultryman

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*Assistant in Animal Husbandry**Supervisor of Short Course in Agriculture and Domestic Economy*

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Graduate Student Assistant in Chemistry

LOYAL F. PAYNE, B. S.

Graduate Student Assistant in Animal Husbandry

RAY H. PAINTER, B. S.

Graduate Student Assistant in Entomology

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Supervisor Boys and Girls Agricultural Clubs

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Assistant Chemist Experiment Station

*R. L. BREWER, A. B.
Secretary Y. M. C. A.

HENRIETTA KOLSHORN
Graduate Stout Institute
Instructor in Domestic Science and Arts, College Extension Division

*Resigned.

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ASSIGNMENT OF CLASSROOMS

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APPLICATION FOR ENTRANCE

TO

THE OKLAHOMA AGRICULTURAL AND MECHANICAL COLLEGE

I herewith submit this application for the student privileges of the session 1913-14 in the Oklahoma Agricultural and Mechanical College, and do hereby sincerely promise on honor that if this application is granted I will faithfully obey the rules and regulations of the College, will support its constituted authorities in the administration of all its affairs, and I will not enter into or be bound by any agreement or combination with any person or persons for the accomplishment of any purpose at variance with the letter or spirit of the College rules and regulations, or act as a member of any College class, military company, or other organized body for the accomplishment of any such purpose. (A copy of the College rules will be sent on request.)

I do further sincerely promise on honor that I will not join or be a member at any time of any secret society, Greek letter fraternity, or organization of like character composed primarily of students, so long as I am a student of this institution.

Signed Age Years.
Full Name. (Write each name in full. Do not use initials.)

Name of Parent or Guardian

Address of Parent or Guardian Oklahoma.
(City or Town) (County)

Street or R. F. D. Number

Occupation of Parent or Guardian

School or College last attended' Did you Graduate?

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Signed _____ Age _____ Years.

Full Name. (Write each name in full. Do not use initials.)

Name of Parent or Guardian _____

Address of Parent or Guardian _____ Oklahoma.
(City or Town) (County)

Street or R. F. D. Number _____

Occupation of Parent or Guardian _____

School or College last attended _____

Did you Graduate? _____

What Grade did you complete? _____

Church preferred? _____

Are you a member? _____

Indicate by underlining which one of the following complete courses of study you desire to take: *Agriculture; Engineering; Domestic Science and Arts; Science and Literature; Teachers' Normal; Business Course; Twenty Weeks' Short Course in Agriculture and Domestic Economy.*

NOTE.—After filling out this blank have the Superintendent, Principal, or Teacher of the last school which you have attended fill out the certificate on the reverse side of this sheet in order that you may be properly classified. Mail at least 10 days before the beginning of the session to J. H. Connell, President, A. and M. College, Stillwater, Oklahoma, and you will be notified promptly regarding your application for entrance to the College. Graduates of Common Schools and High Schools applying for entrance at the College should bring diplomas or certificates with them.

(Not to be filled in by applicant.)

Class admitted to _____ Course _____

By Examination.

Certificate.

Diploma.

Condition on _____

Entrance Credits on _____

(Adviser _____) Approved _____

Chairman of Committee on Entrance.

OKLAHOMA AGRICULTURAL AND MECHANICAL COLLEGE

The Oklahoma Agricultural and Mechanical College is a State and Federal institution of higher and broader learning, offering technical, scientific and a liberal education to white persons 14 years of age and over, and carrying valuable scientific information to many thousands who can never visit or attend a college.

The service rendered by the College to the State is three-fold:

(1) To educate and train the young people who attend in all that relates to applied science, the industries and citizenship, by affording both liberal and technical studies, laboratories, shops and fields for development of the mind and industrial efficiency—the College proper.

(2) To carry forward investigations in agriculture of a research or experimental nature to learn and disseminate new facts of importance to the adult citizens and the youth of the State—the Agricultural Experiment Station.

(3) To instruct school teachers, children and parents living in all portions of the State in the best proven practice of scientific agriculture, and the broad fields of domestic economy and home building—the College Extension Service.

The College was organized in 1891, and after twenty-two years of sturdy effort now consists of 70 professors and instructors, 2,100 students attending last year, 13 large brick and stone buildings, and an equipment valued at \$180,000.00, and 1,000 acres of land.

Tuition is free in all courses and departments. The College is supported by the Federal Government and by the State of Oklahoma as a part of the free school system.

LAWS CONCERNING THE COLLEGE

This College owes its origin to a bill offered by U. S. Senator

Morrill, of Vermont, in 1862, which provided funds for one such institution of learning in every State of the Union, and set aside certain public lands from which endowments have come to each of these State and Federal Colleges. Therefore these institutions are known as "The Land Grant Colleges".

This Act of Congress, approved July 2, 1862, gave to each State which accepted its provisions 30,000 acres of Government land for each one of its Representatives in Congress, the proceeds to be applied to the endowment and maintenance of colleges

"where the leading object shall be, without excluding the other scientific and classic studies, and including military tactics, to teach such branches of learning as are related to agriculture and mechanic arts, . . . in order to promote the liberal and practical education of the industrial classes in the various pursuits and professions of life."

Again, in 1887, Congress provided for an Agricultural Experiment Station in connection with each of the Land Grant Colleges:

"That in order to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture and to promote scientific investigation and experiments respecting the principles and application of agricultural science there shall be established under the direction of the College in each State or Territory, established . . . in accordance with an . . . Act donating public land to the several States and Territories which may provide colleges for the benefit of agriculture and the mechanic arts' . . . a department to be known and designated as an 'Agricultural Experiment Station'."

The First Legislature of the Territory of Oklahoma adopted a resolution assenting to and accepting the provisions of Congress and established the Oklahoma Agricultural and Mechanical College in Payne County, at Stillwater, December 25, 1890.

Congress also provided 250,000 acres of public land as a permanent endowment for the College in the Enabling Act granting statehood to Oklahoma.

The Oklahoma Constitution provides that the State Board of Agriculture shall be the Board of Regents of the A. and M. College in the following:

"Said Board (of Agriculture) shall be maintained as a part of the State Government and shall have jurisdiction over all animal quarantine regulations and shall be the Board of Regents of all State Agricultural and Mechanical Colleges, . . ."

The Oklahoma Constitution is the only State Constitution recognizing the fundamental importance of agriculture and domestic science. It declares that—

"The Legislature shall provide for the teaching of agriculture, horticulture, stock feeding and domestic science in the common schools of the State."

According to the laws of Oklahoma "*The Agricultural and Mechanical College shall be the technical head of the Agricultural, Industrial and allied Science system of education in Oklahoma*".

EDUCATIONAL POLICY

The Board of Regents has carefully considered the wide field of education in which this College was designed to perform its work and has approved courses of instruction prepared by the Faculty embracing courses in agriculture, mechanic arts, military science, domestic science, teacher training and the "*related branches, without excluding other scientific and classical studies*", as expressed in the Morrill Act. All the courses offered, which are fully described in this announcement, are therefore essentially scientific, practical, industrial and professional, while at the same time providing a "liberal" education. These courses are of true college grade, and each includes instruction in mathematics, English language, history, physics, political economy, etc. The degree awarded on completion of any of the four-year courses is *Bachelor of Science*. The degree, Master of Science, is awarded on completion of one year's work in residence to candidates accepted by the Faculty.

The College carries on many lines of work not commonly known as "school work", though truly educative in all respects. It is the earnest desire of the management to assist in the educational work in behalf of grown people who may lack spare time to attend college. This is sought to be accomplished by sending out pointed and practical literature, by supplying well informed lecturers to popular gatherings and to meetings of farmers' and teachers' institutes or other conventions, *under conditions favorable to profitable presentation and discussion* of the subjects. The Acts of Congress and the State Legislature make certain forms of this "college extension" work obligatory. Helpful facts bearing on manufacturing, engineering, agriculture, and education are disseminated to the citizens of all counties in a systematic manner by lectures and in printed reports.

NEW STATE SCHOOLS OF AGRICULTURE

The College sustains intimate and important relations to the six "Secondary Agricultural Schools" provided for by the State Legislature. Graduates from these schools are admitted to "advanced standing" in the College.

These schools are in active operation in the five Supreme Court Judicial Districts of the State and the Panhandle counties. Each has its President and Faculty of instruction, with earnest classes composed of boys and girls who desire an education with industrial training. The schools are located as follows:

The Connors State School of Agriculture, Warner, Muskogee County, for the First Supreme Court Judicial District.

The Murray State School of Agriculture, Tishomingo, Johnston County, for the Second Supreme Court Judicial District.

The Haskell State School of Agriculture, Broken Arrow, Tulsa County, for the Third Supreme Court Judicial District.

The Cameron State School of Agriculture, Lawton, Comanche County, for the Fourth Supreme Court Judicial District.

The Connell State School of Agriculture, Helena, Alfalfa County, for the Fifth Supreme Court Judicial District.

The Panhandle Agricultural Institute, Goodwell, Texas County, for the Panhandle Agricultural District.

FINANCIAL POLICY

The Agricultural and Mechanical College derives support from both Federal and State Governments:

1. A fund derived from the United States Government that may be used for certain grades of class instruction in the College, known as the "Morrill Fund". This fund can be expended only for instruction of students in literature, languages, the sciences, and by a recent amendment, to prepare school teachers in the principles of agriculture and domestic science.

2. The United States Government funds for investigation of scientific and agricultural matters of importance to farmers, and for publishing the results of such tests and experiments, known as the Hatch and Adams Funds. These support the Oklahoma Agricultural Experiment Station.

3. A fund derived from the rentals of public lands donated

by Congress to this College under the Enabling Act granting statehood to Oklahoma, known as the "Land Lease Fund". This fund may be used for operating expenses of the College proper.

4. A fund appropriated annually or biennially by the State for buildings, repairs and extensions to the permanent equipment of the College.

The fact that all the actual expenses of the College are paid by the State and Federal Governments enables the young men and women of Oklahoma to secure an education in any one of the several Divisions of the College without expense except for board, clothing, books and personal expenses. The College thus becomes a part of *the great free school system* of the State.

GRADUATES OF THE COLLEGE

The life of the entire student body of the College is marked by practical purpose and earnest work rarely found in any institution. Scores of graduates of the College (and many more who have pursued studies here without graduating) have gone out from the institution and now reflect credit on the system of education maintained here. These measure up to the highest standard of educated citizenship set by the oldest and largest colleges and universities of America. As scientists, as master workmen, as farmers, and agricultural experts, dairymen, electrical, mechanical, architectural and civil engineers, school teachers, business men, accountants, teachers of domestic science and art, as fathers, mothers and citizens, these have added to the progress of the State and Nation and have justified the hopes of their families and friends.

SCOPE

The chart shown in the front of this catalog will clearly indicate the present organization, purpose and field of work of this institution as the head of the New State system of "applied science education" in Oklahoma.

The many subjects taught are graded and grouped into the following Divisions and Courses: Agriculture, Engineering, Domestic Science and Arts, Teachers' Normal, Science and Literature, and Business Training.

INSTRUCTION FOR TEACHERS

This College has entered freely into the work of preparing teachers for the profession, as teachers of science, the industrial subjects, and related common branches.

The First State Legislature created the Chair of Agriculture for Schools in this College :

"whose duty it shall be to direct and advise in all matters relating to the teaching of agriculture and allied subjects in the common schools, He shall visit the schools, the teachers' institutes, the summer normal schools and the State Normal Schools, advise with the teachers and officers concerned, and shall distribute such leaflets and other literature as may be helpful to teachers and pupils concerned or engaged in teaching industrial, practical and scientific subjects."

The law also states that :

"the Agricultural and Mechanical College, its President, professors and employes shall lend such assistance in carrying out the objects, aims and purposes of the State Constitution regarding the teaching of agriculture and allied practical subjects as shall not conflict with the immediate duties incumbent on them in said institution."

The then State Superintendent, E. D. Cameron, appeared before the Board of Regents and explained the necessity for the College rendering all assistance within its power in training efficient teachers, and urged the introduction of the special course for teachers. The Board authorized the Faculty of the College to plan and inaugurate such a course.

Teachers' Normal Course: On the recommendation of the State Superintendent, and in harmony with the legislative enactments, there has been established a regular collegiate course of instruction known as the Teachers' Normal Course, which affords instruction in all common school, graded and high school subjects, and embodying scientific and industrial branches. The present demand in this and nearby States for trained teachers in technical subjects is already very great.

Summer Normal Institute: To further supply the demand in Oklahoma for trained teachers, this College conducts a complete summer normal institute for teachers. Members of the College Faculty are available as instructors and specialists of note are also employed to assist in making the institution of greatest value.

The work of the "Department of Agriculture for Schools" in

this institution in behalf of all the teachers and schools of Oklahoma, is carried forward with vigor, assisted by experts and scientists from a number of other Departments of the College.

Serious responsibilities have been placed on the A. and M. College by Congress and by the State Legislature in *preparing and training teachers* to instruct our children in *agriculture, the industries and home building*.

PURPOSES

The aims of this College are not merely to train students for increased production or to double or quadruple the earning capacity of the young people who attend the College, but a distinct effort is made to inspire and educate them to be useful citizens of the highest types. The training and knowledge thus acquired will prove a lasting power for good to the individual student and to the State in which we live.

The primary purpose of all the work done by this institution is to render the youth of Oklahoma more capable and effective; to increase vitality and to add intellectual, moral and creative power; to clarify the ambitions of immature minds; to enrich the ideals of youth, and to make the lives of all who come in contact with the College and its work brighter, purer and better. A kindly personal interest in the welfare of every student is evident in all transactions, recitations and relations between instructors and students.

The style of education afforded here does not stop with increase in skill or the acquirement of the "three R's". It goes further and accomplishes true education, the development of the whole man—the hand, the head, the heart.

By adding "skill" the man's efficiency is increased three-fold; by adding to skill education, his productive power is again multiplied by at least three—a nine-fold gain over the unskilled, uneducated man! Here lies the problem of higher standards of living and citizenship "for the industrial classes in the various pursuits and professions of life".

The purposes of the institution in student instruction may be stated more specifically as follows:

In Agriculture: To equip young men for expert and scientific work as practical farmers, as scientific authorities and investigators, as teachers, and as valuable contributors to the advancement of scientific agriculture; in its short courses to give the maximum of scientific agricultural training and information in the minimum of time to those who cannot take a collegiate course; and in its Experiment Station work, by research and experimentation, to be a trusted guide and leader to the farmers of the State.

In Engineering: To fit young men for positions of profit, responsibility, and usefulness in the professions of mechanical, electrical, architectural and civil engineering.

In Applied Science: To give such proficiency in one or more of the natural sciences as will enable the graduate to conduct research work on his own account, to accept positions which require expert service, and to become a reliable authority in his chosen science.

In Domestic Science and Arts: To prepare young women for the duties of home-making in all its branches as specialists; to prepare teachers, matrons, etc., for the Government service.

In Teachers' Normal Training: To educate and train young men and women to become expert teachers of high professional standing, having first a broad foundation consisting of the common branches and the natural sciences.

In Business Training: To prepare young men and women for acceptable service as clerks, stenographers, bookkeepers, and for other positions in the business world.

In Citizenship: So to train young men and women as definitely to fit them for service profitable to themselves and valuable to the State; to this end training the eye and the hand as well as the mind and the heart, seeking thus to realize the purpose declared by Congress, of promoting "the liberal and practical education of the industrial classes in the various pursuits and professions of life".

It must not be understood that all of the lines of technical instruction named above can be given to one student. A further reading of the catalog will disclose the several courses and the choices which are open to the student.

LAND AND BUILDINGS

The College campus and farm embrace a tract of 1,000 acres.

The present College buildings were erected by the State at a cost of over \$355,000.00, and they are equipped with the latest and best appliances and scientific apparatus, representing an outlay by the State and Federal Governments of approximately \$180,000.00. All buildings are steam heated, electric lighted, and have sewer connections.

ENGINEERING BUILDING.—It is of three stories, covers 160 by 80 feet, and is built of reinforced concrete and brick with stone trimmings. On the ground floor are located the steam and hydraulic laboratories and boilerroom, the electrical laboratory, the civil engineering laboratories for testing cement, masonry and steel, rooms for surveying instruments, storage batteries, standardizing room, men's locker room, and offices for the Dean. On the next floor are the engineering library, the physical laboratory and lecture room, four other lecture rooms for the various Departments, and rooms for photometry, physical apparatus, stock and women's lockers, and offices for heads of Departments. On the top floor are the quarters for the Department of Architectural Engineering, consisting of a lecture room, library and reading room, large drafting room, and an office for the professor. There are also on this floor four drafting and lecture rooms for the use of other Departments, rooms for records and offices for instructors.

SHOP BUILDING.—A stone and brick building covering 40 by 200 feet; for a depth of 80 feet it is two stories high, and the balance one story. It was constructed mainly by student labor and of materials from the old Shop, formerly occupying part of the site of the new general Engineering Building. It provides accommodations for the carpenter, machine and blacksmith shops and foundry, and has up-to-date tool rooms, etc., complete.

HEATING PLANT.—This building was completed at a cost of \$40,000.00, and is equipped with efficient boilers, dynamos and engines. This equipment furnishes heat and light for all College buildings and power for the shops.

CHAPEL BUILDING.—It covers a ground area of 97 by 150

feet and is constructed of reinforced concrete and brick with stone trimmings. A spacious entrance lobby contains offices and stairways to the balcony, and opens into the auditorium. This has a sloping floor from front to rear. The stage is flanked by the necessary dressingrooms. In addition to the ample front entrance there are two side entrances, with stairways leading from the balcony. The seating capacity of the building is about 1,800.

DOMESTIC SCIENCE HALL AND GIRLS' DORMITORY.—This new building cost \$62,000.00 and is most complete, modern and convenient, containing gymnasium, dining hall, kitchen, reception hall, parlor, classrooms for domestic science, domestic arts, drawing and art work, and living rooms for the accommodation of girl students. Rooms are electric lighted, steam heated, and all halls are equipped with lavatories, baths and other aids to the health of the girls attending the College. The building is under the supervision of a competent matron.

BOYS' DORMITORY.—This building is equipped with all modern conveniences and has two rooms fitted up for use as a hospital where the boys who become sick may be well cared for.

CHEMISTRY BUILDING.—A two-story brick structure with basement, the main portion 64 by 42, wing 54 by 32 feet. In this building are located the chemistry laboratory of the Experiment Station; classrooms and laboratories for instruction in agricultural and general chemistry.

LIBRARY HALL.—A brick and stone building, two stories and basement, 76 by 72 and 111 by 65 feet. It is used, in addition to the accommodation of the library and reading rooms, for the Departments of Zoology and Veterinary Science, Drawing and Art Work, with lecture rooms, toilet rooms, etc., in the basement.

The College has also a well selected Library of 15,943 volumes, besides some 30,000 unbound publications. All of the desirable current publications are received.

CENTRAL BUILDING.—(The original building of the College.) A two-story brick and stone building with a basement, 66 by 60 feet. It is now used for instruction in mathematics, English, and contains the printing office of the College.

MORRILL HALL.—Named in honor of Senator Justin S. Morrill, by Act of the Legislative Assembly providing for its construction, cost complete, with heating plant, \$75,000.00. It contains quarters for the administration and business offices of the College and Station, and suitable offices, lecture rooms, and laboratories for the Departments of Animal Husbandry, Botany, Horticulture and Entomology. The armory and the classrooms for instruction in history, pedagogy, German and Latin are located here. There are fireproof vaults on the first and second floors. The general dimensions of the building are 76 by 166 feet.

DAIRY BUILDING.—A brick structure of two stories, 60 by 30 feet, containing the class instruction rooms of the Department. An addition 50 by 32 feet to this building has materially increased the efficiency of the instructional, experimental and demonstration work of the Department, besides a moderate volume of commercial dairy work.

AGRONOMY BUILDING.—A two-story building, equipped with soil and crop laboratories, classrooms, farm machinery laboratory, etc.

LIVESTOCK JUDGING PAVILION.—A two-story brick structure, affording ample accommodations for the study of the fine livestock owned by the College. This building contains two large classrooms, and in addition an amphitheater with a seating capacity of between 400 and 500, and an arena 50 feet square.

OLD ENGINEERING BUILDING.—Now occupied by the Departments of Music and Business Training. A brick and stone structure of two stories and basement.

BARNs.—A brick barn 60 by 96 feet, a large frame barn for pure bred dairy cattle, a hog barn, and a sheep barn comprise the principal farm buildings.

GREENHOUSES.—Two greenhouses are a part of the equipment of the Department of Horticulture and Botany. The one recently completed cost \$5,000.00 and is used largely by students in studying plant production.

EQUIPMENT

In chemistry, physics, engineering, mineralogy, botany, zoology, bacteriology, entomology, physiology, dairying, veterinary science, agriculture, horticulture, music and physical training, the College is equipped with the most modern appliances and apparatus.

REQUIREMENTS FOR ADMISSION

Tuesday, September 2, and Wednesday September 3, 1913, will be devoted to the examination and classification of new students. All candidates for admission, whether by certificate or examination, should present themselves at the President's office and report to the Committee on Entrance Tuesday morning at nine o'clock.

Former students of the College will apply for registration Wednesday morning, September 3, to their advisers.

Students intending to apply for admission by examination are urged to satisfy themselves, before coming to the College, that they can pass a reasonable examination in the subjects required.

Students entering classes in January at the beginning of winter term, or at any other time, must be prepared to join established class work.

County Superintendents of Oklahoma will hold examinations for entrance to the College as required by law during the months of August (for September entrance), and in December (for January entrance). The questions will be supplied from this College and papers graded at the College.

Specimen examination questions are printed on the last few pages of the body matter of this catalog.

Applicants for the Short Course in Agriculture and Domestic Science, opening October 7, should present themselves for registration on that date. No entrance examinations are given to such applicants.

Students may be admitted to the College in one of three ways: (a) by diploma, (b) by certificate, (c) by examination. Candidates for admission on diploma must present their diploma to the

Committee on Entrance on applying for registration at the College. Candidates for admission by certificate should present to the Committee on Entrance a statement from the last school attended, showing classification, grades, and the amount of work covered in each subject. Entrance examinations are chiefly written, and candidates must make a grade of 70 per cent to pass in a study. All applicants must have attained their fourteenth year. Applicants to the Sub-Freshman class living in towns having high schools must be sixteen years of age. Applicants for entrance to the Business Course must be eighteen years of age.

To the Sub-Freshman Class

The Sub-Freshman class has been established to secure, under competent instruction, a higher degree of efficiency in the studies which prepare for the more advanced collegiate work, particularly in English and mathematics. Boys and girls fourteen years of age or over will be admitted to this class if sufficiently advanced in school subjects, provided that applicants living in towns supporting high schools must be sixteen years of age. Applicants may be admitted to this class without examination on satisfactory records from the eighth grade of city schools if sixteen years of age, and on diplomas from common schools. Applicants from other schools must pass a satisfactory examination in reading, spelling, penmanship, geography, United States history, grammar and arithmetic.

To the Freshman Class

Applicants for admission to the College who satisfy the Entrance Committee that they have completed the tenth grade work may enter the Freshman class. Other applicants must pass examination in subjects above mentioned, and in higher arithmetic, algebra through quadratic equations, elementary rhetoric and composition, physiology, and physical geography. (For specimen examination questions see index for page number.)

To Advanced Standing

Applicants who have graduated from an accredited high school will be given credit for Freshman studies in all cases where they satisfy the head of the Department concerned that they are proficient in their work. Graduates and undergraduates from

other colleges and universities of good rank and standing will be admitted and granted such credits as their work will justify, so far as this work applies in any of the courses offered in the College.

Post Graduate Work

The degree Master of Science will be granted upon the completion of twenty-eight hours' work carried for one year or fourteen hours' work carried for two years and the presentation of a satisfactory thesis. Graduate students can be registered only upon the approval of the heads of the Departments concerned, the Faculty, and the President of the College. Those who desire to register as graduate students are advised to communicate with the President or with the head of the Department in which they desire to work.

To the Business Course

Applicants for admission to the Business Course must have completed eighth grade subjects and be eighteen years of age.

Admission to Other Applicants

Holders of common school diplomas will be admitted to the Sub-Freshman class without examination, under conditions given above. Pupils of *city schools* who can present satisfactory records from the *eighth grade* may also be admitted to this class, if sixteen years of age. Pupils of city schools who have satisfactory records from the *tenth grade* may be admitted to the Freshman class.

Pupils having no diplomas will be admitted to the *Sub-Freshman Class* and to the *Business Course* by passing a satisfactory examination in reading, spelling, penmanship, geography, United States history, grammar and arithmetic.

Pupils having no diplomas will be admitted to the *Freshman Class* by passing a satisfactory examination in the subjects before mentioned, and in higher arithmetic, algebra through quadratic equations, elementary rhetoric and composition, physiology and physical geography.

Under the rules of the College, applicants failing to pass entirely satisfactory entrance examinations in *any two* of the subjects above named may be permitted to enter the class and pursue

the studies of that class on condition that the deficient subjects be taken up as "back work" and mastered during the term. The latitude thus given will permit pupils from those schools in which physiology, physical geography or some other required subjects are not taught to enter the desired classes "conditioned".

COST OF ATTENDANCE

Board and Rooms

Rooms and board for students rooming in the Woman's Building or in the Boys' Dormitory are provided at the following rates: Furnished room (including heat, light, water, etc., two students occupying each room), \$3.00 per month each, payable in advance; board \$3.25 to \$3.75 per week, payable monthly in advance. Application for dormitory accommodations must be made in writing. Those occupying rooms in dormitories must furnish towels, bed linen and covers. The dormitories contain bathrooms and all necessary facilities, are thoroughly sanitary, heated by steam and lighted with electricity.

A copy of the rules governing assignment of rooms and the operation of the College dormitories will be sent on application.

Board with room in private families can be obtained for \$3.50 to \$4.50 per week. Furnished rooms, \$2.00 to \$5.00 per month, if two occupy the room.

Other Expenses

The total cost of attending the regular College courses embraces the items of board, books, clothing, and minor incidental expenses of a personal character. These may be safely estimated at \$160.00 to \$200.00 for nine months. About 50 per cent of the students materially reduce their expenses below the figures given by working in the several departments of the College and in the City of Stillwater, and many earn all personal expenses by diligent application.

Amount Required to Begin

Tuition is free. Textbooks will cost from \$3.00 to \$8.00 per term.

Those students of limited means desiring to enter the College should have some \$75.00 available with which to bear the first

items of personal expense and make sure of some months' consecutive study. This amount is estimated for young men to include:

Board and room two months.....	\$36.00
Books, etc.....	8.00
Incidentals	5.00
Military uniform, hat, shirt, coat and trousers.....	17.15
<hr/>	
Personal expenses.....	\$66.15

With such sum in hand or available the industrious student may by his own efforts secure three or four months, or even a longer period, of study in the College. The same estimate will apply to young women if cost of uniform be deducted. Extravagance in all forms is discouraged. Every dollar earned by the student's personal effort results in saving two dollars in unnecessary expenditure. Freshmen and Sub-Freshmen boys must supply themselves with gymnasium suits costing \$3.00. Girls of the Sophomore, Freshman and Sub-Freshman classes must supply themselves with gymnasium suits costing \$6.00.

Approved Rooming Houses

Comfortable and desirable homes in Stillwater are listed as "approved rooming houses" for male and female non-resident students by the Faculty Committee on Assignment to Rooms. Students are not permitted to room in other than approved rooming houses.

ADVISERS TO STUDENTS

To bring about a closer relation between students and members of the Faculty and parents, and for the purpose of safeguarding every interest of the individual student, the College has adopted an "advisory system" which applies to all students. A small number of students are assigned to each instructor, who is known as their adviser for the year, and whose duty it is to know each of them personally, and to meet them from time to time. All instructors serve as advisers. The adviser endeavors to become familiar with the conditions surrounding his students. He calls in case of illness and will notify the parents of his visits at such times

and of the general care shown. Parents should not hesitate to write to advisers or to the President concerning matters that may have to do with the students' comfort and progress in their studies.

Care of Health

The health of all students is a matter of chief concern to the officers of the College. The rules require that all cases of illness be reported promptly. The College employs two responsible physicians who attend all students without charge in cases of illness or injury received in the line of duty, except cases of major surgery. Sick rooms for the better accommodation of boys and girls suffering from any normal illness are provided without additional cost in both of the new dormitory buildings.

All students have access to the separate gymnasiums for boys and girls. Games and sports are encouraged for their mental relief and the physical relaxation afforded. Moral principles are carefully inculcated in these physical sports taken under the daily supervision of instructors who are specialists in physical training. The exercises indoors and in the open air, followed by baths, and with the privilege of consultation on matters of personal health afford valuable safeguards to the health of every student who attends the College.

Help

Students are employed freely on the farm, in the creamery, the orchard and garden, College dining hall, the Printing Department and elsewhere, for which reasonable remuneration is allowed. This, in connection with other positions about the College buildings and grounds, and such opportunities as are offered in the city, has enabled a very considerable number of students practically to make their own way through their College course. The amount a student can earn depends almost entirely upon his thrift and energy, and the time he can spare from his studies. The rate of pay is 12½ cents per hour for work faithfully performed. Many students are thus assisted and encouraged every year—the preference being given to those whose college work is meritorious. It must not be gathered from this that the College engages to afford employment sufficient to enable every worthy young man to complete the course without other resources. With the growth of

the institution has come an increased demand for this employment which it is impossible to meet in full. Yet very few students have been compelled to leave College in recent years on account of inability to secure work.

Education at Home

By this phrase, in this connection, is meant education for Oklahoma young men and women within the State of Oklahoma. More than 2,100 people studied at this College the past year. This is strong evidence of appreciation of this institution by Oklahomans. There are many reasons why the young people of the State should seek their collegiate training within its borders. The expenses, as set forth in preceding paragraphs, are very low—but a fraction of the necessary cost of attending eastern institutions. The nearness to home in case of accident or sickness is to be borne in mind. The institution is supplied with the latest and most approved equipment in all lines of scientific work. Its instructors are specialists of recognized standing in their respective departments, drawn from the leading technical schools of the country. Its work is fully accredited elsewhere, whether for graduate work, or for employment in technical, industrial, educational or Government service. There is no longer, in brief, any necessity of going beyond the limits of the State in order to secure an approved collegiate education. Moreover, if the student expects to live in Oklahoma, the acquaintance formed in his college life, of hundreds of other young men and women throughout the State, will be an invaluable source both of profit and pleasure to him.

GENERAL INFORMATION

The seat of the Agricultural and Mechanical College is Stillwater, in Payne County, a "college town" of five thousand people, most beautifully and healthfully situated at an elevation of 915 feet above sea level. Payne County was one of the five original counties of Oklahoma Territory and is named for David F. Payne, the noted pioneer, who first settled near the present site of the College. Stillwater citizens and students of the College enjoy the advantage of electric lights, telephones, free delivery of mail, a city water system, sewerage, and a very complete system of brick walks shaded continuously by trees.

How to Reach College

Stillwater is on the Santa Fe Railroad (Arkansas City and Pauls Valley branch). The main connections are at Guthrie, Pawnee and Shawnee as follows, according to time tables in effect March 1, 1913:

From Perry, Enid and the northwest take the Frisco, arriving at Pawnee at 10:25 a. m. Take the Santa Fe at 10:47 a. m. for Stillwater, arriving at 11:45 a. m.

From Tulsa and the northeast take the Frisco, arriving at Pawnee at 5:25 p. m. Leave at 7:20 a. m., arriving at Stillwater at 8:14 a. m. If more convenient, go via Davenport or Cushing. From the east and southeast, arrive at Shawnee to take the 1:00 p. m. Santa Fe, reaching Stillwater at 3:35 p. m. This train passes through Davenport at 2:07 p. m. and through Cushing at 2:45 p. m.

From the south, southwest and west, reach Oklahoma City to take the 3:40 p. m. Santa Fe northbound, which makes direct connections at Guthrie for Stillwater, leaving Guthrie at 5:10 p. m. and reaching Stillwater at 7:10 p. m.

Moral Influences

Eight leading churches are represented in Stillwater and the students are encouraged to attend and participate in their services. As a matter of fact, the Sunday Schools and the young people's societies of the several churches in Stillwater are sustained very largely by the students from the College.

A Young Men's Christian Association and a Young Women's Christian Association are actively engaged in the numerous and beneficial lines of work characteristic of these organizations among students. An active Bible study class is supported by the male students. These student organizations are not merely helpful to their membership, but exert a wholesome influence on the moral life of the College. Social gatherings and entertainments are made to contribute to the moral welfare of the students of both sexes, and these add to the address and composure of those who seek the helpful influences of this institution.

Examinations

In addition to the regular monthly tests, examinations are held in all classes at the close of each term. A student who has made

a grade of 90 or more in a given subject may be excused from the term examination at the discretion of the instructor. Reports of class standing will be supplied parents or guardians six times in the course of each year.

Grades and Reports

Grades are stated by a system of letters. The term grade is the average of the *daily grade*, and the *grades made in tests*, and in making up the final grade for the term, the term grade shall count two-thirds and the final examination grade one-third. Reports showing the grades and standing of students are sent to parents and guardians *every six weeks*. Attention is particularly directed to these reports; they are the best indication of the work and standing of the student.

For the information of parents and others, it may be stated that the letter system of grading adopted by the College compares with the percentage system about as follows: A grade of A is practically equivalent to a percentage grade of 95-100, inclusive; a grade of B corresponds to 90-94 plus; C to 80-89 plus; D to 70-79 plus; E to 50-69 plus; F below 50. A final grade of D or better is necessary to pass in any study.

Theses

In some departments a thesis is required for graduation, and in other departments it is elective. Students intending to write theses must select the subject not later than the last week of the winter term, the subjects to be approved by the departments having charge of the work. All theses must be approved and ready to be typewritten not later than June 1.

Diploma

Each candidate for graduation in the four years' courses shall deposit with the Registrar \$5.00. Candidates for graduation in the S. A. and D. E. and Business courses shall deposit with the Registrar \$2.50 before the student is recommended for graduation.

Library

The College library, a rich storehouse of learning, containing the best magazines, current periodicals and standard works of

general and special value, is free to all students. Every department of the College is largely represented in it, and it contains, besides numerous reference books, the principal home and foreign periodicals. Students are permitted to consult freely, in the reading room, the reference books and periodicals, and to take to their rooms all other books under proper restrictions.

Literary and Other Societies

General literary societies are always active among the students. The Philomathean, the Omega and the Alpha Societies enroll a large per cent of the entire student body, and, in addition, a number of clubs and societies have been formed by students specializing in science, engineering, pedagogy, agriculture and domestic science for the purpose of supplementary work and investigation. The Athletic Association has charge of all local College sports, of Field Day exercises (April 22), and of the interests of the institution in the intercholastic and intercollegiate meets. The Oratorical Association has charge of the representation of this College in the preliminary intercollegiate oratorical contests.

Of Interest to Girls

About one-third of the students of the Agricultural and Mechanical College are young women. All courses are open to them.

The course in Domestic Economy is of the greatest practical value to young women because it is carefully arranged to give science with practice in the best possible proportion and order. This course affords a very complete education in hygiene, designing, art work, cutting and fitting, plain and fancy sewing, and includes the subjects needed in a liberal education—English, history, mathematics, physical culture and a number of forms of music. The technical work offered in this course is especially thorough.

In order to meet the demand for a more general course, the "Science and Literature" course has been established. This course will be found to be especially adapted to the needs of young women desiring higher education in literature, languages, history, etc., and offering training in music, elocution, and domestic science.

Athletics, Military Drill and Discipline

The constant purpose of the College is to develop "sound minds in sound bodies" and to train the moral faculties. Clean sports and games on the field cultivate the mental and moral sides of the individual as well as the physical side, while affording needed occasion for relaxation and the repair of muscular and nerve tissue. Ball games and track athletics are encouraged by the College authorities.

The College Gymnasium for men is under the supervision of a competent physical director. The exercises in the Woman's Gymnasium are directed by competent lady instructors.

The A. and M. College track team won the State championship of Oklahoma at the Oklahoma City meet in the spring of 1909, and championship of the Southwest at Austin, Texas, the same season. The team won first in Oklahoma athletics in the seasons of 1909, 1910, 1911, and second in 1912.

The Northeastern Interscholastic Track and Field Meet is held on the College grounds annually, to which the schools of all sections of Oklahoma are especially invited. Nineteen schools participated in these events the spring of 1912.

Baseball and football are provided with suitable grounds, and tennis courts are at the disposal of students.

Military drill is given for its physical and disciplinary effects, as required by the Federal law establishing this and other similar colleges. The good results of this drill are quickly noticed in the improved health and carriage and deportment of those coming under its helpful influence. Young men, especially, need such training to give the erect carriage and strong physique that marks the man of military training. The power to supervise work and command men can only be gained by those who obey and can perform the work when called on.

An officer of the United States Army is assigned to duty at the College as Commandant of Cadets. Instruction in military science is provided for all male students, and infantry drill is given in the field movements and under arms. Arms, accoutrements and ammunition have been supplied by the Federal Gov-

ernment. The military discipline is mild but firm, and cultivates habits of punctuality, alertness and the sense of personal responsibility. Its good effect upon the physique and the health of the students is of added benefit to the gymnasium work. A rifle club organized by volunteers is an interesting feature of military training.

A distinct effort is made to develop a progressive college spirit in the characters of all who attend this College. The discipline is morally sound and very systematic in its helpful influence on mind and body. As far as practicable the discipline is adapted to the varying needs of different dispositions coming under its influence.

Honor Students

The honor students for the session 1911-12 were as follows:

Senior Class: Ellsworth C. Bartlett, first; Edward E. Bartlett, second.

Junior Class: Cornelius B. Brown, first; John Sieglinger, second.

Sophomore Class: E. P. Lane, first; Ella Morrow, second.

Freshman Class: Carrie McCord, first; Merritt Olmstead, second.

Sub-Freshman Class: Beulah Monday, first; Edward M. Morton, second.

Prizes

Two prizes of \$15.00 and \$10.00 are offered by the President for excellence in the Freshman class. The first prize was won by Carrie McCord, and second prize by Merritt Olmstead for the session of 1911-12. Engrossed commissions are awarded the commissioned officers of the corps, and a handsome sword is given to the captain having the best drilled company. The sword was won in May, 1912, by Captain F. G. Drummond of Company H.

The Alumni Association offers cash prizes of \$10.00 to athletes (see note bottom page 24) of the College as follows:

1. A prize of \$10.00 to the member of the football team having the highest class standing for the entire college year.

This prize was won by Earl Weaver of the Senior class for the session of 1911-12.

2. A prize of \$10.00 to the member of the men's basketball team having the highest class standing for the entire college year.

This prize was won by E. E. Gravelle of the Junior class for the session of 1911-12.

3. A prize of \$10.00 to the member of the baseball team having the highest class standing for the entire college year.

This prize was won by E. R. Perdue of the Freshman class for the session of 1911-12.

4. A prize of \$10.00 to the member of the track team having the highest class standing for the entire college year.

This prize was won by Loyal Payne of the Senior class for the session of 1911-12.

The Alumni Association offers a cash prize of \$25.00 to be given to the debater winning first place in an annual debating contest between the literary societies, the awarding of same to be governed by rules formulated by the literary societies and approved by the president of the Alumni Association.

This prize was won by Mac Hoke for the session of 1911-12.

The Young Men's Christian Association

The Young Men's Christian Association keeps in touch with the International Committee by sending student delegates to the conferences held annually at Ruston, Louisiana, and Oklahoma City. Classes in Bible and mission studies are conducted during the entire year by students and members of the Faculty, and many young men are taking part in this work. At the beginning of every school year the New Students' Committee meets every train and assists new students in securing homes. Receptions are given by the association on one or more occasions during the College year for the purpose of promoting acquaintance among the stu-

NOTE.—To be eligible for athletic prizes, the student must meet the following requirements:

Be a bona fide student of the A. and M. College in good standing and carrying 18 hours or more work in the term during which he is in athletics.

Be a member of the first team and be eligible for a letter under the rules of the Athletic Association covering its presentation.

To make the highest class standing for the College year as determined by a committee of the Faculty on prizes.

dents. The association maintains a well appointed room in the Library Building where the association literature is kept, and all young men are welcome for rest or study. Regular meetings are held every Sunday at 2:30 p. m., and a weekly prayer meeting is held from 7:00 to 7:30 every Wednesday night. These meetings, conducted by students, members of the Faculty, or ministers of the city, have fostered the Christian life of the members, and through them exerted a wholesome influence upon the entire student body. A general secretary is employed who devotes his energies to upbuilding this feature of college life.

The Young Women's Christian Association

The Young Women's Christian Association stands for an all-round young woman, developed physically, mentally, morally and spiritually. The strengthening and broadening of Christian life is the great and chief purpose for which the association exists, but as a means of reaching men and women, the social life of the College is used and, in fact, centers in the Y. W. C. A. and its co-worker, the Y. M. C. A.

The students carry on the work of the association and have made it one of the best organized bodies for work in the College. It carries on systematic courses of Bible and missionary study, which are open to every girl in the College. On Sunday afternoon of each week a devotional meeting is held, and all girls are welcomed. A Y. W. C. A. rest room has been provided for the accommodation of all girls. It is conveniently located on the first floor of Morrill Hall.

The association is visited several times during the year by its State and district workers. These educated, devoted young women bring a great inspiration into the girls' lives.

One important service of the association is the meeting of the new students at the train and assisting them in finding homes, and arranging their schedules of study. The reception given to the new students by the two associations is an annual event which is eagerly looked forward to by all. Another annual event given by the Young Women's Christian Association is the May night Carnival.

DIVISIONS OF COLLEGE INSTRUCTION

The divisions of instruction are grouped and planned to suit the natural needs and desires of the students in attendance at this institution, as indicated by the experience of the College for several years past. Formerly the studies offered by the several departments of the College were grouped into "Courses of Study". As a result of recent development and change these are now known as "Divisions" and their subdivisions are termed "Courses", thus the Engineering Division has its Electrical Engineering course, Mechanical Engineering course, etc.

Under the present organization the studies of the College are grouped into the following Divisions:

1. Agricultural Division.
2. Engineering Division.
3. Domestic Science and Arts Division.
4. Science and Literature Division.
5. Teachers' Normal Division.
6. Business Division.

THE AGRICULTURAL DIVISIONW. A. LINKLATER, *Dean*

The Courses in Agriculture are:—

The Regular Course.

Short Courses:—

1. Twenty Weeks' Course in Agriculture and Domestic Science and Arts.
2. Farmers' Short Course.
3. Four Weeks' Course in Creamery Buttermaking and Creamery Management.
4. Two Weeks' Course in Ice Cream Making.
5. One Week's Course in Milk and Cream Testing.
6. Industrial Buttermakers' Course.
7. Cotton Growers' Course.

Departments of Instruction in the Agricultural Division are:—

1. Department of Animal Husbandry.
2. Department of Agronomy.
3. Department of Dairy Husbandry.
4. Department of Horticulture and Botany.
5. Department of Short Courses.

The subjects of the Agricultural Division are taught by the following Departments:—

The Department of Animal Husbandry.
The Department of Agronomy.
The Department of Dairy Husbandry.
The Department of Horticulture and Botany.
The Department of Zoology and Veterinary Science.
The Department of Mechanical Engineering.
The Department of Electrical Engineering.
The Department of English.
The Department of German and Latin.
The Department of Mathematics and Astronomy.

The Department of Chemistry, Metallurgy and Mineralogy.

The Department of Entomology.

The Department of Political Economy and Social Science.

The Department of Pedagogy and History.

The Agricultural Division embraces the courses in Animal Husbandry, Agronomy, Dairying and Horticulture, and is concerned with two main lines of effort—instruction and investigation. While the work of instruction comes more directly under the College and the work of investigation and experiment under the Experiment Station, and while they are distinctly separate so far as the duties of each are concerned, yet they unite and the outcome is to more than double the strength of the instruction given both the students and the farmers of our State. The work of both is very closely associated and united on the common college ground of instruction to students and farmers. This desirable result is further strengthened by the fact that the heads of the Departments in the Agricultural Division are also members of the Station staff, so that the instruction given in the College has the benefit of the investigations and experiments of the Experiment Station.

For instruction and investigation purposes, the Division is equipped with excellent lecture rooms, several laboratories, and an equipment which in some lines is very complete. Where it is not so strong as we would like it to be, it is becoming possible by the liberality of the Legislature to extend its efficiency very rapidly. The farm consists of about one thousand (1,000) acres of both rolling and bottom land, affording excellent land for the care of all cultivated crops, as well as pasture land, that is in every way satisfactory. High class herds of livestock are also a part of the equipment. A creamery fully equipped and lately enlarged, and being operated very successfully commercially, is another valuable feature of our equipment. Two greenhouses are now a part of the equipment. The farm has good, modern horse, cattle, sheep and hog barns. A \$15,000.00 Stock Judging pavilion containing ample amphitheater and classrooms for showing and judging livestock is under cover. With all these livestock lines and field crop features so liberally provided for, the Agricultural Division has an equipment in animal husbandry,

agronomy, dairying and horticulture which adds materially to the excellence of the instruction imparted to students, and greatly strengthens the reliability of all experimental work.

Every effort is being made to bring the Agricultural Division of the College into close and useful relations with the agricultural interests of our State. In this connection it is gratifying to refer to the helpful relations existing between the Agricultural Division and the College Extension Division. The several Departments of this Division give liberal aid in the way of lending equipment and lecturers for special agricultural trains, special Short Courses and Boys and Girls Clubs. In these ways and through the issuing of bulletins to the press and the sending forth of lecturers the work of the Agricultural Division of the College is broadening into lines that are becoming extremely useful and valuable to the rural interests of Oklahoma.

The Courses in Agriculture

THE REGULAR COURSE.—The regular course, which covers four years, embraces as major studies Agronomy, Animal Husbandry, Dairy Husbandry and Horticulture. All the students in the Agricultural Division take the same work in the Freshman and Sophomore years. In the Junior year the students are given some latitude, and are permitted to specialize to a slight extent in either of the major studies which have been mentioned. In the Senior year the specialization is complete.

This course has been arranged so as to enable those who complete it to farm successfully as well as to equip them to fill positions relating to the several lines in which they have specialized.

The schedule of the subjects taught in the regular courses, with the hours per week assigned to each, follows:

Outline of Courses in the Agricultural Division Giving Subjects and Hours

The figure and letter following the Department name signify the serial number of the subject, and indicate the first (a), second (b), or third (c) term's work in the same subject. The name in parenthesis is the specific name of the subject, and the figures in column at the right of the name indicate the number of hours per week the subject is taught; classroom hours without parenthesis, practicum hours in parenthesis. The practicum period is two hours in length, and is equivalent to one hour classroom work in estimating number of hours per week to be taken. Students must take, including electives, at least eighteen hours' work per week and not more than twenty-three hours, without special permission. Military Science and drill are required of all male students in the course.

FRESHMAN YEAR

FALL TERM	WINTER TERM	SPRING TERM
English 1a.....4	English 1b.....4	English 1c.....4
Mathematics 1a.....5 (Algebra)	Agronomy 1a.....5 (Geology)	Agronomy 1b.....4 (2) (Farm Machinery)
Physics 5.....4 (2) (Ele. Physics)	Mathematics 2d.....4 (Plane Geom.)	Mathematics 2e.....5 (Plane Geometry)
History 1a.....4 (American)	History 1b.....4 (Government)	Pub. Speaking 1c..... (2) (Expression)
Animal Husb. 1a..... (2) (Stock Judging)	Animal Husb. 1b..... (2) (Stock Judging)	Botany 1a.....3 (4) (Ele. Botany)
Drawing 1a..... (4) (Ele. Drawing)	Mech. Eng. 1a..... (4) (Woodwork)	Physical Training
Mech. Eng. 3b..... (2) (Blacksmithing)	Pub. Speaking 1b..... (2) (Expression)	
Public Speaking 1a..... (2) (Expression)	Physical Training	
Physical Training		

SOPHOMORE YEAR

FALL TERM	WINTER TERM	SPRING TERM
English 2a.....4	English 2b.....4	English 2c.....4
Chemistry 1a.....3 (4) (Inorganic Chem.)	Chemistry 1b.....3 (4) (Inorganic Chem.)	Chemistry 1c.....3 (4) (Inorganic Chem.)
Botany 1b.....2 (4) (Ele. Botany)	Animal Husb. 2a.....3 (4) (Breeds)	Agronomy 4.....3 (2) (Farm Crops)
Agronomy 2.....3 (4) (Soils)	Horticulture 1.....3 (2) (Orchard Fruits)	Animal Husb. 2b.....2 (2) (Breeds)
Dairying 1.....2 (4) (Ele. Dairying)	Zoology 1.....3 (4) (Gen. Zoology)	Agronomy 3.....1 (2) (Grain Judging)
		Horticulture 2.....4 (Veg. Gardening)

JUNIOR YEAR

FALL TERM	WINTER TERM	SPRING TERM
Physiology 1.....3 (4) (Adv. Physiology)	Botany 3.....2 (4) (Plant Physiology)	Botany 4.....2 (4) (Plant Mycol. and Pathology)
Botany 2.....3 (4) (Plant Physiology)	Animal Husb. 3a.....3 (Prin. Breeding)	Animal Husb. 3b.....3 (Prac. of Breeding)
Chemistry 2.....3 (4) (Adv. Inorg. Chem.)	Chemistry 17.....3 (4) (Applied Organic Chemistry)	or
Elective	Agronomy 5.....3 (4) (Soil Physics)	Botany 5.....1 (6) (System. Botany)
	or	Entomology 1.....3 (4) (Ele. Entomology)
	Dairying 2.....3 (4) (Adv. Dairying)	Chemistry 10.....5 (Agri. Chem.)
	or	Elective
	Vet. Medicine 1.....3 (4) (Anatomy)	
	Elective	

Course in Animal Husbandry

SENIOR YEAR

FALL TERM	WINTER TERM	SPRING TERM
Bacteriology 1.....3 (4) (Gen. Bacteriology)	Vet. Medicine 3.....3 (Materia Medica)	Vet. Medicine 4.....2 (2) (Animal Diseases)
Animal Husb. 4.....5 (Feeds & Feeding)	Animal Husb. 7a.....4 (2) (Livestock Man.)	Animal Husb. 7b.....4 (2) (Livestock Man.)
Vet. Medicine 2.....2 (Animal Parasites)	Agronomy 7.....5 (Farm Manage.)	College and Experiment Station work.....3 (4)
Animal Husb. 5.....1 (4) (Adv. Stock Judg.)	Elective	Rural Problems.....4 (2)
Elective		Elective

Course in Agronomy

FALL TERM	WINTER TERM	SPRING TERM
Bacteriology 1.....3 (4) (Gen. Bacteriology)	Agronomy 8a.....4 (2) (Soil Fertility)	Agronomy 13.....3 (2) (Adv. Crops)
Animal Husb. 4.....5 (Feeds & Feeding)	Bacteriology 2.....2 (4) (Agri. Bacteriol.)	Agronomy 6.....2 (2) (Adv. Crop Breeding)
Agronomy 11.....2 (2) (Farm Motors)	Agronomy 7.....5 (Farm Management)	College and Experiment Station work.....3 (4)
Entomology 3.....3 (4) (Econ. Entomology)	Agronomy 12.....2 (4) (Agri. Engineering)	Rural Problems.....4 (2)
Elective	Elective	Elective

Course in Dairying

FALL TERM	WINTER TERM	SPRING TERM
Bacteriology 1.....3 (4) (Gen. Bacteriology)	Dairying 4.....2 (6) (Cheesemaking)	Dairying 7.....2 (2) (Dairy Engineering)
Animal Husb. 4.....5 (Feeds & Feeding)	Dairying 5.....4 (2) (Bus. of Dairying)	Dairying 8.....2 (6) (Sp. Dairy Prod.)
Dairying 3.....2 (6) (Buttermaking)	Dairying 6.....2 (Factory Manage.)	College and Experiment Station work.....3 (4)
Elective	Elective	Rural Problems.....4 (2)
		Elective

Course in Horticulture

FALL TERM	WINTER TERM	SPRING TERM
Bacteriology 1.....3 (4) (Gen. Bacteriology)	Agronomy 8a.....4 (2) (Soil Fertility)	Horticulture 3.....2 (2) (Forestry)
Animal Husb. 4.....5 (Feeds & Feeding)	Horticulture 7.....3 (Plant Breeding)	Horticulture 8.....2 (2) (Landscape Gard.)
Horticulture 6.....2 (4) (Pomology)	Horticulture 4.....3 (4) (Nursery Work)	College and Experiment Station work.....3 (4)
Elective	Elective	Rural Problems.....4 (2)
		Elective

JUNIOR AND SENIOR ELECTIVES

FALL TERM	WINTER TERM	SPRING TERM
Major Agri. Sub.....5	Major Agri. Sub.....5	Major Agri. Sub.....5
German 1a.....4 (Beginner's Course)	Bacteriology 2.....2 (4) (Agr. Bacteriol.)	Bacteriology 3.....2 (4) (Tech. Bacteriology)
German 2a.....5 (Adv. Reading)	Pedagogy 8.....2 (H. S. Adm.)	Social Science 8.....4 (Government)
Botany 6.....3 (4) (Spec. Sys. Botany)	Horticulture 5.....2 (Business Fruit & Veg. Growing)	German 2c.....5 (Adv. Reading)
Vet. Medicine 2.....2 (Animal Parasites)	Social Science 6.....4 (American Citizenship)	Entomology 5.....3 (4) (Scientific Entom.)
Pedagogy 1.....5 (Psychology)	Zoology 4.....2 (4) (Embryology)	Botany 9.....3 (4) (Gen. Morphology)
Animal Husb. 9.....2 (2) (Breeds of Poultry)	German 2b.....5 (Adv. Reading)	Pedagogy 9.....2 (School Supervision)
Entomology 6.....3 (2) (Hort. Entomology)	Botany 7.....3 (4) (Plant Cytology)	Animal Husb. 12.....2 (2) (Incubation & Brooding)
Social Science 2.....4 (Prin. of Pol. Econ.)	Entomology 4.....2 (4) (Biolog. Entom.)	Botany 5.....1 (6) (System. Botany)
English 8a.....5 (Adv. Composition)	Animal Husb. 10.....2 (2) (Poultry Prod. & Management)	German 1c.....4 (Beginner's Course)
Public Speaking 2..... (2) (Adv. Expression)	Botany 8.....3 (4) (Morphology)	English 8c.....5 (Adv. Composition)
	German 1b.....4 (Beginner's Course)	Pub. Speaking 4.....1 (2) (Public Address)
	English 8b.....5 (Adv. Composition)	Agronomy 8b.....4 (2) (Soil Fertility)
	Pub. Speaking 3.....1 (2) (Debating)	Thesis

Department of Animal HusbandryW. A. LINKLATER, *Professor*C. I. BRAY, *Assistant Professor*H. A. BITTENBENDER, *Assistant in Charge of Poultry*W. W. EVANS, *Superintendent of Farm*V. R. MCBRIDE, *Poultryman*

The Department of Animal Husbandry gives instruction in those subjects which deal with livestock production. The instruction work includes the study of the recognized market types and the more popular improved breeds of livestock. A study is made of the feeds available to the Oklahoma stock farmer, and methods of preparing and feeding these feeds to obtain the most economical results. The breeding and management of various kinds of livestock are made a feature of the course. A large collection of herd books on file in the Department library are available for class use in the tracing of pedigrees and the studying of special breeds, strains and families of livestock. Judging livestock by means of the use of the score card, as well as comparative stock judging, is fully emphasized. The livestock equipment affords an excellent opportunity to study the improved breeds of stock. The pure bred stock represented are as follows: *Cattle*—Short-horns, Herefords, Aberdeen Angus and Jerseys. *Swine*—Poland Chinas, Berkshires and Duroc Jerseys. *Sheep*—Shropshires, Dorsets and Delaine Merinos. *Horses*—Percheron and American Trotter. In addition high class work horses and mules are used as work stock on the farm, and these, together with the animals used in Experiment Station work, are available for instruction in livestock judging. Practical instruction is given in the care, handling and feeding of livestock, and the subjects throughout are made as practical as possible.

Equipment for instruction in poultry husbandry is provided. Flocks of the leading varieties of poultry are maintained, modern poultry houses, incubators, brooders, etc., are in use, and a standard poultry plant operated which is available for student instruction.

SUBJECTS

- 1 *a-b*. STOCK JUDGING.—Freshman year, fall and winter terms; two hours practicum per week. Required: Agr., Sci. & Lit. (men), Normal (men).

A thorough training in score card work is given. A special study of animal form, as an index to excellence in beef, dairy, mutton, wool and pork production, and of efficiency in labor. Careful consideration is given to the standard market classes and grades of livestock.

- 2 a. BREEDS OF LIVESTOCK.—Sophomore year, winter term; three hours theory and four hours practicum per week. Required: Agr. Prerequisites: An. Husb. 1a, 1b.

The leading improved breeds of horses and cattle are studied, as to their origin, development, adaptability and breed characteristics. The practicum work consists of score card and comparative judging of representatives of the various breeds of stock kept on the College farm and those of nearby breeders.

- 2 b. BREEDS OF LIVESTOCK.—Sophomore year, spring term; two hours theory and two hours practicum per week. Required: Agr. Prerequisites: An. Husb. 1a, 1b, 2a.

The leading improved breeds of sheep and swine are studied, as to their origin, development, adaptability and breed characteristics. The practicum work consists of score card and comparative judging of representatives of the various breeds of stock kept on the College farm and those of nearby breeders.

- 3 a. PRINCIPLES OF BREEDING.—Junior year, winter term; three hours theory per week. Required: Agr. Elective: Normal.

A study of facts and problems especially important to the plant and animal breeder, including the kinds and causes of variation, the transmission of characters, controlling of type, laws of correlation and heredity, and prepotency.

- 3 b. PRACTICE OF ANIMAL BREEDING.—Junior year, spring term; three hours theory per week. Optional (Bot 5): Agr. Prerequisite: An. Husb. 3a.

The selection of breeding stock, systems of breeding, including grading, cross-breeding, line breeding and in-and-in-breeding, pedigree and herdbook study with a view to becoming acquainted with methods of registration, and also with the leading strains and families of the different breeds of livestock, methods of keeping livestock breeding records, identification, etc.

4. FEEDS AND FEEDING.—Senior year, fall term; five hours theory per week. Required: An. Husb., Agron., Dairy., Hort.

A study of the composition of the animal body, the processes of digestion, assimilation and elimination, and the function of the different nutrients in animal nutrition, together with the composition of feeds, the compounding of rations for different purposes and for different classes of stock, and the feeding and management of farm livestock.

5. ADVANCED LIVESTOCK JUDGING.—Senior year, fall term; one hour theory and four hours practicum per week. Required: An. Husb. Prerequisites: An. Husb. 1a, 1b, 2a, 2b.

A course for advanced animal husbandry students in comparative judging of the various market types and the improved breeds of livestock.

- 7 a. LIVESTOCK MANAGEMENT.—Senior year, winter term; four hours theory and two hours practicum per week. Required: An. Husb. Elective: Normal. Prerequisites: An. Husb. 3a, 3b, 4.

A study of the most practical methods of producing, feeding and managing different classes of horses, beef cattle and swine.

- 7 b. LIVESTOCK MANAGEMENT.—Senior year, spring term; four hours theory and two hours practicum per week. Required: An. Husb. Prerequisites: An. Husb. 3a, 3b, 4.

A study of the most practical methods of producing, feeding and managing dairy cattle and sheep.

9. BREEDS OF POULTRY.—Senior year, fall term; two hours theory and two hours practicum per week. Elective: An. Husb., Agron., Dairy., Hort.

The leading breeds of poultry are studied as to their history, adaptability, utility and breed characteristics. The practicum work consists of practice in scoring representatives of the different breeds.

10. POULTRY PRODUCTION AND MANAGEMENT.—Senior year, winter term; two hours theory and two hours practicum per week. Elective: An. Husb., Agron., Dairy., Hort.

A careful study of the management and feeding of laying and breeding stock, and the equipment necessary for the operation of a modern farm poultry plant.

12. INCUBATION AND BROODING.—Senior year, spring term; two hours theory and two hours practicum per week. Elective: An. Husb., Agron., Dairy., Hort.

Problems of artificial incubation; development of the chick embryo; care, management and feeding of the chick; Experiment Station results; practice work in operating incubators and brooders.

- THESIS.—Senior year, spring term. Elective: An. Husb.

In the regular course each student during the spring term, Senior year, may prepare a thesis on some subject of research relating to any of the problems of animal husbandry. The subject, with an outline of the project, must have the approval of the head of the Department under whom the student is taking the major study, during the fall term, and the investigation be actively undertaken during the winter term.

THE FARM

W. W. EVANS, *Superintendent*

The tract of land owned by the College embraces about a thousand acres. The College farm proper consists of about seven

hundred and thirty acres. This acreage embraces a variety of soil, and includes both lowland and upland. The lowlands are adapted to the growing of corn, alfalfa and other crops of a similar nature, while the uplands are suitable for pasturage. Thus the whole makes a very fit equipment for the breeding and feeding of livestock.

The purpose of the farm is to illustrate so far as possible the preparation of the land, the growing of crops, and the management thereof, according to the best agricultural practices as adapted to Oklahoma. It is intended to be helpful to the farmer who inspects it, as well as instructive to the student who sees its daily operations. Special effort is made to bring the students in closer touch with the farm work. It has been felt that our agricultural courses should be stronger in this regard, and it is the intention to bring the student in the Agricultural Division in much closer touch with farm work than it has been possible to do in the past. In other words, it is sought to make the farm as much a department of instruction for the student as any laboratory, or other equipment of the College wholly devoted to that purpose.

Another important feature of the farm work is the production of pure seed of the leading varieties of farm crops. This pure seed is produced for distribution to the County Demonstration Farms, and the surplus for general distribution among the farmers of the State. In this way the farm serves as a constant source of pure seed.

Department of Agronomy

O. O. CHURCHILL, *Professor*

A. C. HARTENBOWER, *Assistant Professor*

A. H. WRIGHT, *Assistant Agronomist, Experiment Station*

The course in Agronomy is designed to acquaint the student with the fundamental principles in the production of farm crops, in the management of the soil, and in rural engineering. It offers practical training in these modern fields of science and fits men for farm management and for educational and research work. It seeks to supply the great demand for broadly educated scientists who understand soils, crops, and rural engineering. The first two years are devoted largely to the usual scientific and classical subjects of a college course, while the last two years are

devoted largely to the technical subjects, whose mastery equips the student for his life work.

The instruction work in the Department of Agronomy is conducted in laboratory and lecture rooms in a building devoted exclusively to this Department. One thousand acres of land are available for the study of plants and soils, under normal environment. Of this area about two hundred acres are devoted to Agronomy work; and the demonstrations of soil management, crop adaptation, and cultural methods may be observed.

The soil laboratories are equipped with apparatus and supplies for carrying on studies with soil types, physical properties of soil, and soil fertility.

The crop laboratory is well supplied with the necessary material and specimens for a detailed study of the different crops.

All the latest and best types of farm machinery and farm motors have been loaned by different machinery firms to the Agronomy Department for use in class instruction.

Sufficient geological specimens are available for the work required in this subject.

SUBJECTS

1. FARM MACHINERY.—Freshman year, spring term; four hours theory and two hours practicum per week. Required: Agr.

This course embraces a study of physics as related to the construction of farm machinery; of power machinery and power transmission; and of material used in the construction of farm machinery. The ordinary farm machines are studied under the following outline: Tillage machinery, seeding machinery, harvesting machinery, haying machinery, manure spreaders, threshing machinery, corn machinery, feed mills, buggies, wagons and pumping machinery. The final chapter is devoted to the value and care of farm machinery. The practicum consists of taking down and reassembling the machines studied in the classroom, and of an investigation of the working parts of each machine.

2. SOILS.—Sophomore year, fall term; three hours theory and four hours practicum per week. Required: Agr. Elective: Normal.

This course treats of soils in their relation to crop growth; the origin and formation of soils as affecting their fertility and durability; soil texture and soil structure as affecting soil moisture and its movements; soil temperature, aeration and the liberation of plant food; the function of humus; nitrification, denitrification and the fixation of nitrogen, as influenced by soil management. Special attention is given alkali soils, soil erosion, crop adaptation, green manuring, use of farm manures and soil deterioration.

3. GRAIN JUDGING.—Sophomore year, spring term; one hour theory and two hours practicum per week. Required: Agr. (must be taken at the same time as Agronomy 4).

Corn judging is one of the major features of this course; wheat, oats, kafir corn, cotton and other staple crops are also measured by the standard known as the score card. Types and varieties studied in the classroom are given attention.

4. FARM CROPS.—Sophomore year, spring term; three hours theory and two hours practicum per week. Required: Agr. (must be taken in conjunction with Agronomy 3).

This course includes a study of the staple field crops of Oklahoma. The groups are classified as: Cereals, grasses, legumes, forage crops, tubers, root crops, sugar plants, fiber plants and miscellaneous crops. The following points are considered in each of the leading crops: History, structure, classification, selection, culture, adaptation, harvesting and marketing.

5. SOIL PHYSICS.—Junior year, winter term; three hours theory and four hours practicum per week. Optional (Dairy, 2 or Vet. Med. 1): Agr. Prerequisite: Agron. 2.

This course consists mainly of a field or laboratory study, by the individual student, of special problems relating to the physical characteristics of soils and their relation to crop production. The student may study any local soil problem which exists on his home farm. Assigned readings, a study of previous investigations and written reports constitute the class work. In the laboratory the experiments begun in Agronomy 2 may be continued or some special soil problems may be investigated.

6. ADVANCED CROP BREEDING.—Senior year, spring term; two hours theory and two hours practicum per week. Required: Agron.

In this course a study is made of the principles of plant breeding and their application to the improvement of farm crops. Emphasis is given to the methods now in use by the leading plant breeders, their methods of keeping records, and the manipulation of hybridization.

7. FARM MANAGEMENT.—Senior year, winter term; five hours theory per week. Required: An. Husb., Agron.

This course consists of a study of the administration of the farm. Forms of land tenure; the farm unit adapted to the different kinds of farming; the selection of the farm; planning the farm; types of buildings, and cropping system; farm equipment; stocking the farm; labor problems; marketing problems; farm records and farm accounts are the principal topics studied. The object of the course is to study the definite application and correlation of the principles learned in the preceding courses to actual farm practices.

- 8 a-b. SOIL FERTILITY.—Senior year, winter and spring terms; four hours theory and two hours practicum per week. Re-

quired: Agron. (8a), Hort. (8a). Elective: Normal (8a), Agron. (8b).

This course is intended to cover, in its broadest scope, the problems of soil fertility. This Station has now in progress extensive experiments which are intended to help solve the many fertility problems of Oklahoma. These, and the leading investigations being made in other parts of the United States, and those of the Rothamsted Station, will be studied in detail. The practicums will consist of pot culture experiments with the typical soil types of the State.

9. ELEMENTARY AGRICULTURE.—Sophomore year, fall term; three hours theory per week. Elective: Normal.

This course is intended to prepare students taking the Normal course for teaching the elementary principles of agriculture. The study covers in a brief way the main divisions of agriculture—horticulture, forestry, animal husbandry, dairying and agronomy.

10. GEOLOGY.—Freshman year, winter term; five hours theory per week. Required: Agr. Elective: Sci. & Lit. (Sophomore), Normal (Sophomore).

This course deals primarily with structural geology. Physiography will be briefly reviewed, and historical and economic geology will be given as much consideration as time will permit. The economic deposits of the State will be given special consideration.

11. FARM MOTORS.—Senior year, fall term; two hours theory and two hours practicum per week. Required: Agron.

This course considers the economy of animals as motors; sweep powers, tread powers, windmills, steam boilers, traction engines, and the principles of operation, styles, parts and uses of each. The major part of the course consists of a study of gas engines. Emphasis is given gas engine troubles and how to overcome them.

12. AGRICULTURAL ENGINEERING.—Senior year, winter term; two hours theory and four hours practicum per week. Required: Agron.

This course is designed to consider in a brief and concise manner the running of levels, tile and surface drainage, laying and leveling tile, furrow flooding and subirrigation, the adaptability of irrigation for the different crops, the construction and maintenance of country roads, water supply, sanitation, and the construction of farm buildings. The practicums will consist of practical surveying, and of making building plans and specifications.

13. ADVANCED FARM CROPS.—Senior year, spring term; three hours theory and two hours practicum per week. Required: Agron.

A course designed to give the student a broader knowledge of the field crops of the United States than that given in the Sophomore year. This course will consist of lectures, assigned readings and research work in field crops.

THESIS.—Senior year, spring term. Elective: Agron.

The student may prepare a thesis during the spring term, Senior

year, on any subject of research included in the Agronomy Department, after first having secured the approval of the head of the Department. The student is advised not to write a thesis unless he is prepared to outline and begin the work at the beginning of the Senior year.

Department of Dairy Husbandry

ROY C. POTTS, *Professor*

J. M. CADWALLADER, *Assistant*

A separate two-story building 60x30, with wing to the rear 50x32 feet, is devoted exclusively to the work of this Department. The laboratories for student instruction are equipped with all modern machinery for studying the latest and most scientific methods of analyzing and manufacturing dairy products. On the first floor of the new wing in a room 50x32 feet is operated a demonstration creamery buttermaking department, which furnishes an opportunity to students for investigation of practical and scientific problems in buttermaking.

The aim of the instruction given in this Department is to give young men a thorough and practical knowledge of the many phases of dairying and fit them for positions as superintendents or foremen of creameries and ice cream plants, experts in governmental and experimental dairy work, and managers of dairy farms.

The scope of the instruction given in the regular courses is outlined under the heading of Subjects, which follows.

The Special Short Courses in Dairying are described on pages 50 and 51 of this catalog.

SUBJECTS

1. ELEMENTARY DAIRYING.—Sophomore year, fall term; two hours theory and four hours practicum per week. Required: Agr. Elective: Normal (Sophomore and Junior).

A study of dairy farm management and the principles which apply to the production and handling of dairy products in a wholesome and economical manner on the farm, the official testing of dairy cows for milk and butterfat production, and the use of the official score card in studying dairy farm conditions. In the laboratory is given practical work in milk and cream testing, separating milk, ripening cream, churning, and preparing butter and milk for the market.

2. ADVANCED DAIRYING.—Junior year, winter term; three hours theory and four hours practicum per week. Optional (Agron. 5 or Vet. Med. 1): Agr.

Course for Junior students intending to specialize in dairying

during the Senior year. This course consists of a series of lectures with supplemental reference and laboratory work. It includes a history of dairying in this and foreign countries; a retrospect of the dairy and creamery systems employed in the United States since 1850; a study of factory equipments, dairy machinery, dairy legislation and literature; also the composition of dairy products. The laboratory work consists of exercises in testing milk and cream, moisture tests of butter, detecting preservatives and adulterants, standardizing of milk and cream, and the analysis of butter and commercial dairy products.

3. BUTTERMAKING.—Senior year, fall term; two hours theory and six hours practicum per week. Required: Dairy.

A study of the principles and practice of buttermaking, including pasteurizing, starters, cream ripening, churning, salting, working, packing, judging and marketing of butter, also equipment and operation of factories.

4. CHEESE MAKING.—Senior year, winter term; two hours theory and six hours practicum per week. Required: Dairy.

A study of the care and handling of milk for cheese making, the action of pepsin, rennet, and heat on milk; the manufacturing of cottage, neufchatel, cream and cheddar cheeses, with brief description of the making of other kinds, the curing of cheese, cheese judging, and the equipment of cheese factories.

5. BUSINESS OF DAIRYING.—Senior year, winter term; four hours theory and two hours practicum per week. Required: Dairy.

A study of the management of dairy farms and factors influencing the economical production of dairy products.

6. FACTORY MANAGEMENT.—Senior year, winter term; two hours theory per week. Required: Dairy.

This course embraces lectures on the operation of creameries, cheese factories, ice cream and dairy plants. Special reference is made to the arrangement of machinery with a view to economizing time and labor. Various systems of simplified bookkeeping and accounting are studied, also of marketing butter both locally and in car lots. Plans for buildings and material for construction of the same are also studied in this course, and thorough training in creamery bookkeeping is given.

7. DAIRY ENGINEERING.—Senior year, spring term; two hours theory and two hours practicum per week. Required: Dairy.

This course is intended to familiarize the student with all kinds of dairy machinery, as pasteurizers, churns, boilers, engines and refrigerating machinery. Their construction and principles of operation are studied in particular. Where the student has not had previous experience in the operation of traction or stationary engines, practice work is required in the College power plant on Monday to familiarize the student with the principles of firing steam boilers and operation of steam engines.

8. SPECIAL DAIRY PRODUCTS.—Senior year, spring term; two hours theory and six hours practicum per week. Required: Dairy.

This course, as indicated, embraces a study of and practice work in the manufacture and sale of special dairy products. Those in particular which are studied are the butter substitutes, modified milk, market milk, condensed milk, and frozen dairy products. The laboratory work supplements the lectures and gives the student a limited amount of experience in the preparation of such of the products as are selected for study. Extra laboratory work may be taken by the student when arranged.

THESIS.—Senior year, spring term. Elective: Dairy.

The student has the option of taking an extra elective or preparing a thesis on some subject of investigation which bears an important relation to dairying. An outline of the thesis must be approved by the head of the Department before the assignment of a student to thesis work will be granted, and work must begin before the opening of the spring term.

- RURAL PROBLEMS.—Senior year, spring term; four hours theory and two hours practicum per week. Required: An. Husb., Agron., Dairy., Hort.

This course is a study of agricultural production, marketing and credit systems, and economic, social and financial problems confronting the rural population of the United States today. The organization and success of rural societies and industrial cooperative associations as a solution of these problems will be studied.

Department of Horticulture and Botany

N. O. BOOTH, *Professor*

D. C. MOORING, *Assistant*

C. D. LEARN, *Assistant*

This Department occupies rooms in Morrill Hall with abundant class and laboratory room, and a full equipment for laboratory and photographic work. It is equipped with a complete line of garden seeders; tools for lawn work; spray pumps; a large collection of models of common varieties of apples, peaches, plums, pears, cherries and such fruits; charts showing the diseases of fruits and garden plants; and a herbarium of cultivated plants showing most of the plants cultivated in the United States. In the way of practical operations, this Department is well situated, having at its command the orchards of the Experiment Station and greenhouse facilities. The horticultural grounds include twenty acres with a complete collection of trees and vines. For instruction in forestry, a plantation of 40,000 trees is available, both for observation and for practical work in propagation, pruning and transplanting.

The equipment of the botanical laboratory includes 40 compound microscopes of recent manufacture (5 of Zeiss and 35 of Bausch and Lomb), 4 camera lucides, a horizontal, compound microscope, 36 dissecting microscopes and a number of hand lenses, hand microscopes, 2 rotary and a sliding microtome; several hundred microscopic slide preparations of lower plants, plant anatomy and plant pathology specimens for special study; a full line of glassware, chemicals, reagents, and stains; special apparatus for plant physiology and pathology, including ovens, clinostat, sterilizers, etc. The large herbarium includes authentic collections of algae fungi, lichens, liverworts, mosses, ferns and seed plants, and a complete set of Halsted's American weeds, one set of Kny botanical charts, a collection of woods, seeds and other preserved material for class use. Aside from this living material is drawn, as much as possible, from the greenhouses and College grounds.

SUBJECTS

HORTICULTURE

1. ORCHARD FRUITS.—Sophomore year, winter term; three hours theory and two hours practicum per week. Required: Agr. Elective: Normal.

A study of the orchard fruits grown in Oklahoma and the best methods of cultivating and marketing them.

2. GARDEN VEGETABLES.—Sophomore year, spring term; four hours theory per week. Required: Agr. Elective: Normal.

The general and specific characters of vegetables are studied as a basis of the study of the methods of growing and marketing the crop.

3. FORESTRY.—Senior year, spring term; two hours theory and two hours practicum per week. Required: Hort. Elective: Sci. & Lit., Normal.

A study of the best trees for planting in Oklahoma for the purpose of growing fuel, fence posts and windbreaks, and the best methods of planting and cultivating tree plantations.

4. NURSERY WORK.—Senior year, winter term; three hours theory and four hours practicum per week. Required: Hort.

A study of the methods of propagating plants and methods of nursery management.

5. **BUSINESS OF FRUIT AND VEGETABLE GROWING.**—Senior year, winter term; two hours theory per week. Elective: An. Husb., Agron., Dairy., Hort.

A study of the market requirements in the line of fruits and vegetables and of the best methods of meeting these requirements. This course is based upon the practice and experience of the most successful fruit growers and truck gardeners.

6. **POMOLOGY.**—Senior year, fall term; two hours theory and four hours practicum per week. Required: Hort.

A systematic study of the varieties of orchard fruits. Material for class use is purchased and kept in cold storage until the class is ready to use it.

7. **PLANT BREEDING.**—Senior year, winter term; three hours theory per week. Required: Hort.

The practice of breeding and selection as it applies to horticultural plants is taught with a view of giving the student a knowledge of the best methods of plant improvement.

8. **LANDSCAPE GARDENING.**—Senior year, spring term; two hours theory and two hours practicum per week. Required: Hort. Elective: Normal.

The fundamental principles of landscape gardening are taught and practice is given in making plans for home gardens.

BOTANY

- 1 a. **ELEMENTARY BOTANY.**—Freshman year, spring term; three hours theory and four hours practicum per week. Required: Agr., Dom. Sci. & Arts. Optional (Math 1c): Sci. & Lit., Normal.

A study of plant forms, mainly of the higher plants, together with the more important plant activities. Living material is used as much as possible in order that the student may gain first hand information for himself.

- 1 b. **ELEMENTARY BOTANY.**—Sophomore year, fall term; two hours theory and four hours practicum per week. Required: Agr. Elective: Sci. & Lit., Normal.

A study of cells and cellular structures. A general view of the plant kingdom by the study of one or more types from each of the larger plant groups.

2. **PLANT PHYSIOLOGY.**—Junior year, fall term; three hours theory and four hours practicum per week. Required: Agr. Elective: Sci. & Lit., Normal. Prerequisites: Bot. 1a, 1b, Physics I, Chemistry 1a, 1b, 1c.

Great care is taken to give the students a thorough training in the essentials of vegetable physiology. All the tissues of the plant are studied, including the stem structures of ferns and seed plants. The last part of the term is devoted to laboratory experimental work in plant physiology, followed by recitations and lectures.

Here are included all of the chief functions of plants and the conditions affecting them, such as the influence of temperature, moisture, light and gravitation upon growth, movement, food manufacture and respiration.

3. PLANT PHYSIOLOGY.—Junior year, winter term; two hours theory and four hours practicum per week. Required: Agr. Elective: Sci. & Lit., Normal. Prerequisites: Bot. 1a, 1b, 2, Physics 1, Chemistry 1a, 1b, 1c.

A continuation of Botany 2.

4. PLANT MYCOLOGY AND PATHOLOGY.—Junior year, spring term; two hours theory and four hours practicum per week. Required: Agr. Elective: Sci. & Lit. Prerequisites: Bot. 1a, 1b, 2, 3.

The fungus diseases affecting the agricultural, horticultural and forestal plants are studied structurally. In this connection the best methods of controlling the more common diseases are considered.

5. SYSTEMATIC BOTANY.—Junior year, spring term; one hour theory and six hours practicum per week. Optional (An. Husb. 3b): Agr. Elective: An. Husb., Agron., Dairy., Hort., Normal. Prerequisites: Bot. 1a, 1b.

A study of the local plant families most important to agriculture, and the identification of species belonging to these families.

6. SPECIAL SYSTEMATIC BOTANY.—Senior year, fall term; three hours theory and four hours practicum per week. Elective: An. Husb., Agron., Dairy., Hort., Sci. & Lit., Normal. Prerequisites: Bot. 1a, 1b, 2, 5.

The identification and classification of plants native to Oklahoma. Special emphasis is paid to seed plants and their classification in relation to cultivated plants.

7. PLANT CYTOLOGY (Cellular Botany).—Senior year, winter term; three hours theory and four hours practicum per week. Elective: An. Husb., Agron., Dairy., Hort. Prerequisites: Bot. 1a, 1b, 2, 5, 8, 9.

A study of the plant cell, cell division, and the phenomenon of fertilization. The student is familiarized with the methods of slide preparation from living material.

8. GENERAL MORPHOLOGY OF THE LOWER PLANTS.—Junior year, winter term; three hours theory and four hours practicum per week. Elective: An. Husb., Agron., Dairy., Hort., Sci. & Lit. (Senior), Normal (Senior). Prerequisites: Bot. 1a, 1b, 2.

A general study of the seedless plants except the ferns. Representatives of the algae, fungi, liverworts and mosses are studied as an introduction to the evolution of vascular plants (Botany 9). Special emphasis is put on the system of fungi as a foundation for plant pathological investigation.

9. GENERAL MORPHOLOGY OF THE VASCULAR PLANTS.—Junior year, spring term; three hours theory and four hours practicum per week. Elective: An. Husb., Agron., Dairy., Hort., Sci. & Lit. (Senior), Normal (Senior). Prerequisites: Bot. 1a, 1b, 2, 8.

A continuation of Botany 8. Emphasis is placed on the evolution of plants as shown by a study of the reproductive organs and stem anatomy. Ferns and seed plants are the plants studied.

COLLEGE AND EXPERIMENT STATION WORK.—Senior year, spring term; three hours theory and four hours practicum per week. Required: An. Husb., Agron., Dairy., Hort.

This is a study of the various methods of conducting the different kinds of experimental work relating to animal husbandry, agronomy, dairying and horticulture. It familiarizes the student with the organization of the experimental work in this country and enables him to become informed with reference to the actual experimental work that has been conducted in these various departments of agriculture and assists the student to present the topics relating to these in the most effective manner. The students will be brought into closer touch with experimental work which is under way at the Experiment Station, and may be called upon to take charge of lower class work.

Department of Short Courses

The Short Courses offer young men and young women who feel they cannot take time or afford the expense of taking the regular course a brief training in the more immediately practical subjects during that part of the year when they can most conveniently leave home.

The Short Courses are not considered substitutes for the regular course, but are planned to meet a demand and condition. It is hoped that many will continue their studies in the regular College Agricultural Course.

The Short Courses will be found very helpful in the everyday practices of the farm and home.

Physical training is required of all students.

I. THE TWENTY WEEKS' COURSE

H. A. BITTENBENDER, *Supervisor*

This twenty weeks' course offered in the School of Agriculture and Domestic Economy has been arranged with the purpose of giving the most practical instruction in agriculture and domestic economy in the shortest possible time. It is arranged to furnish training of special value to those boys and girls, young men and young women who intend to stay on the farm. It has been planned to include a season when the farm work will permit of absence for instruction in farm problems. Applicants must be at

least fifteen years of age, and fairly well advanced in the common branches. To meet the conditions of many young men and young women in the country the course is arranged to begin October 7, when the fall work on the farm ceases to be pressing, and to close March 6, when the services of the students are again likely to be needed at home. This course provides thorough instruction in the most practical farm subjects and offers opportunity to study the cultural side as well. Instruction is offered in Farm Machinery and Motors, Carpentry, Farm Crops, Livestock, Eradication of Insects, Traction Engines and Farm Management for the young men. Instruction is given in Cooking, Sewing, Dressmaking, Drawing, Home Decorating, Hygiene and Home Nursing for the young women. Those who wish may elect in addition such subjects as eighth grade Arithmetic and English, Public Speaking, Music, and Rural Problems.

Students who complete the English and Arithmetic offered in this course with a grade of "B" or better and who complete fifteen hours of other studies offered per term, with a grade of "C" or better, may enter the Sub-Freshman class without examination.

A certificate of graduation will be granted upon the satisfactory completion of twenty-five hours of work per week per term. Not more than five hours of this twenty-five hours' work may be chosen from among the elective studies.

Outline of Courses in School of Agriculture and Domestic Economy Twenty Weeks' Course—Giving Subjects and Hours

COURSE FOR MEN

(The student must select twenty hours from this list for graduation.)

FALL TERM		WINTER TERM	
Farm Machinery and Motors.....	3 (4)	Farm Manage. and Farm Accts.....	3 (2)
Carpentry	(4)	Soils	2 (2)
Milk and Its Products.....	2 (2)	Blacksmithing	(4)
Farm Crops.....	3 (2)	Livestock	3 (4)
Livestock	3 (4)	Veterinary Medicine.....	3 (2)
Vegetable Gardening.....	3 (2)	Poultry	3 (2)
Physical Training		Fruit Growing.....	2 (4)
		Physical Training	

COURSE FOR WOMEN

(The student must select twenty hours from this list for graduation.)

FALL TERM		WINTER TERM	
Foods (Cooking).....	1 (6)	Sewing (Fancy Work).....	(4)
Hygiene and Home Nursing.....	2	Dressmaking	1 (4)
House Planning, etc.....	2 (2)	Foods (Cooking).....	1 (6)
Drawing	(4)	Special Dietetics.....	2 (2)
Basketry and Reedwork.....	(4)	Home Decorating.....	3
Sewing and Dressmaking.....	1 (4)	Designing	(4)
Vegetable Gardening.....	3 (2)	Drawing	(4)
Milk and Its Products.....	2 (2)	Fruit Growing.....	2 (4)
Physical Training		Poultry	3 (2)
		Physical Training	

ELECTIVES FOR MEN AND WOMEN

(The student may select five hours from this list for graduation.)

FALL TERM		WINTER TERM	
Music	2	Music	2
Public Speaking.....	(4)	Public Speaking.....	(4)
Insect Enemies.....	3 (4)	English Composition.....	5
Farm Law.....	3	Farm Arithmetic.....	5
Farm Arithmetic.....	5	Rural Problems.....	4 (2)
English Composition.....	5		
Traction Engines.....	2 (4)		

SUBJECTS

FARM MACHINERY AND MOTORS.

The course in farm machinery is especially designed to teach the prospective agriculturist how to set up, operate, repair and care for the machines necessary on the farm, such as plows, harrows, grain drills, binders, etc. The ordinary farm motors, windmills, tread powers and gasoline engines are studied by lectures and practical work in the laboratory from the standpoint of their construction, durability, installation, operation and care.

CARPENTRY.

Four hours a week practice in the use of tools and lathes is given in the College woodworking shop under the instruction of a skilled mechanic. Each student is assigned a bench and a kit of tools. This always proves a very attractive as well as valuable part of the course.

MILK AND ITS PRODUCTS.

A study of sanitary methods of handling milk, milking and milk utensils; the effect of poor handling upon the quality of the finished butter product. The laboratory work consists of a study of the operation of cream separators, the Babcock testing of milk and cream, ripening of cream, churning and making butter.

FARM CROPS.

Each staple crop of Oklahoma is studied from the following outline: History and classification of varieties; variety improvement through selection and breeding; names of best varieties for this State; best class of soil for its production; preparation of the soil; fertilization, rotation, planting, cultivation, harvesting, storing and marketing. Grain judging and a study of crop and variety types constitute the chief practical work.

LIVESTOCK.

The class periods are devoted to a study of the standard market classes and improved breeds of livestock to familiarize the student with the special type, characteristics and utility of each. Two afternoons per week are spent in score card practice and comparative judging work with representative animals—horses, hogs, cattle and sheep. In the spring a careful study is made of the principles of nutrition, classification and special characteristics of feeding stuffs, formulating rations, together with the consideration of the best practices in the breeding and management of the several classes of livestock.

VEGETABLE GARDENING.

This subject will concern the home garden as a unit for supplying a large amount of fresh vegetables for the home table, and a supply for canning for home use.

FARM MANAGEMENT AND FARM ACCOUNTS.

A study of the choice of a farm, systems of farm management, marketing of farm products, cooperation, etc. Maintenance of soil fertility and a proper rotation of crops is featured. A system of accounting is devised so that an accurate record may be kept of all expenditures and receipts for the purpose of determining the profitable and unprofitable features of farm operations.

SOILS.

This course is formulated to teach the student to select and manage the soil types found on Oklahoma farms. The work includes such topics as the origin, classification, formation and physical properties of soils; manuring and fertilization of soils; erosion of soils, and how to prevent it; alkali soils, their cause and treatment.

BLACKSMITHING.

The students are instructed in the management of forge and fire, and in bending, shaping and welding iron. Apt students become proficient enough to enable them to do repair work on the farm.

VETERINARY MEDICINE.

Students are taught to recognize the more common diseases and blemishes and given remedies for them; shown how to administer medicines, and how to locate blemishes. Stable sanitation and antiseptic treatment of wounds are important features of the course. Stress is laid upon methods of maintaining health among domestic animals, vaccinating for hog cholera, etc.

POULTRY RAISING.

A series of special lectures will be given on poultry, including breeds, equipment and management. Types of the most important breeds will be used in judging and scoring. Practical work is given in mixing rations, building houses, operating incubators, etc.

FRUIT GROWING.

Instruction is given in grafting, budding, making cuttings, pruning, spraying, cultivating, and all the various handicrafts which the fruitgrower should know. The instruction consists of classroom lectures and practical work in the greenhouse and field.

FOOD PREPARATION AND SELECTION.

In this course the fundamental principles of food preparation are treated in a practical way. The endeavor is to systematize details and formulate methods for more effective work. Each food material is studied with reference to the best temperature for cooking it, as well as from the standpoint of dietetic, economic and nutritive values. Recitations, discussions, collateral reading, demonstration and laboratory practice.

HYGIENE AND HOME NURSING.

The purpose of this course is to give instruction concerning the essential laws of health and to give directions, both positive and negative, for right living with reference to the conditions of home life, as well as care of the sick in the home. Lectures, recitations, discussions, collateral reading and demonstration.

HOUSE PLANNING, FURNISHING, ETC.

The student will study the planning and building of a modern farm home. This house is then furnished and put into running order. A complete account is kept of the cost and the kind of material used. The student has the opportunity of using as little money or as much as she wishes. The object is to encourage the student to be conservative and economical, and to know what to purchase and how to purchase it.

DRAWING.

The purpose of this course is to cultivate a taste for simple and refined surroundings, of well-chosen, inexpensive articles of dress and home; to develop good judgment of form, proportion, and a feeling for harmonious colors and combinations. Hence the work is planned to give opportunity for free personal choice by comparison, selection, arrangement and invention. The term is devoted to a study of line, arrangement, theory of color and its relations to home art.

BASKETRY AND REED WORK.

The instruction in handicraft will include instruction in simple cord and raffia work, including baskets over reed coil.

SEWING AND DRESSMAKING.

Instruction is given in sewing, illustrating the uses of the various stitches, i. e., basting, running, hemming, overhanding, and back stitches. These stitches will be applied to articles, i. e., towels, aprons, undergarments, etc. Ornamental stitches may be used for decoration. Instruction will be given in simple methods of drafting, cutting and fitting, and making a suit of undergarments and a shirtwaist. Lectures will include talks on textiles, clothing, etc.

SEWING.

For those young ladies who are proficient in sewing, a course will be offered in fancy work or advanced sewing, according to ability of the student.

SPECIAL DIETETICS.

The purpose of this course is to give the student direction in the planning of the diet for various classes of people, considering climatic conditions, age, health and disease. Lectures, discussions, collateral readings, etc.

HOME DECORATING.

Color schemes, combinations that are suitable for plain, conservative homes are considered. Simple, plain and economical ways of home decorating are discussed and worked out.

DESIGNING.

This course is advanced work to follow as a complement of the fall term course in drawing, and is devoted to the study of harmonious color combinations and elementary designing for applied art.

MUSIC.

Students are given opportunity to obtain instruction in theory of music, voice, piano, string and wind instruments.

PUBLIC SPEAKING.

The course in public speaking is designed to stimulate in the student a desire to express himself, to give him the free use of his instruments of expression—his mind, his voice and body—to the end that he may be able to speak with ease and power in public.

INSECT ENEMIES.

The student is taught to recognize the insects which are commonly injurious to field, orchard and garden crops. The apparatus and chemicals which are advised for use in controlling these insects are displayed and used in a practical way during the practice hours. A large collection of insects and lantern slides are used to illustrate the lectures.

FARM LAW.

This course is intended to teach the boys and girls everyday business methods, such as the writing of contracts, familiarizing them with titles and mortgages, interest, life and fire insurance, and commercial paper—checks, notes and drafts—and the principles on which corporations and companies are organized.

FARM ARITHMETIC.

A thorough study is made of farm arithmetic problems such as finding capacity of grain bins, cutting rafters, number cubic feet in ton of hay, etc. Entrance to this class only by examination.

ENGLISH COMPOSITION.

A practical course in English and composition, with a part of time devoted to practice in reading. The object of this course is to help the student get more out of the reading and to be able to write more clearly and to the point. Entrance to this class only by examination.

TRACTION ENGINES.

A study of the working parts of steam engines, together with practical instruction in firing and running traction engines.

RURAL PROBLEMS.

This will take up a line of work for improvement of the rural communities through cooperative work in the matter of marketing farm products, etc. The social life of the farm will be studied as well as plans for organizing clubs for the improvement of the social as well as educational side of farm life.

2. THE SHORT COURSE FOR FARMERS

The Short Course for Farmers, lasting for one week, will be given January 12-17, 1914. The program will be announced later. For each of the last five years more than four hundred farmers of Oklahoma have attended this course.

3. FOUR WEEKS' COURSE IN CREAMERY BUTTERMAKING AND CREAMERY MANAGEMENT

A special course in creamery buttermaking and creamery management is offered during the month of January of each year and continues four weeks. For the year 1914 this course will open on January 5 (the first Monday in January). This course is designed for managers of creameries, buttermakers and persons who have had some experience in creamery work. Others of less experience who intend to take up creamery work may obtain a great deal of information from this course. The following schedule explains the course fully and the work offered:

8:00 A. M.—Textbook lessons on buttermaking.

9:00 A. M.—First two weeks: Lectures on feeds, feeding, breeding, care and diseases of dairy cattle.

Second two weeks: Lectures on engines, boilers and creamery machinery.

10:00 A. M.—Creamery bookkeeping and creamery accounting.

1:00 to 5:00 P. M.—Practical work in churning, testing, pasteurizing, and use of the starter.

4. TWO WEEKS' COURSE IN ICE CREAM MAKING

This course of two weeks, beginning January 5, 1914, is a general course in the making of ice cream, sherbets, water and fruit ices. General lectures are given on the composition of milk, receiving, sampling and testing of milk and cream, and special lectures are given on the making, packing and marketing of ice cream factory products. Laboratory practice is also given in the forenoon in milk and cream testing, and the afternoon is devoted to practical work in ice cream making. This course is extremely practical for the commercial ice cream maker.

5. SPECIAL ONE WEEK'S COURSE IN MILK AND CREAM TESTING

Three special one-week courses in milk and cream testing are offered by the Department in cooperation with the State Dairy Commission, the State Dairy Inspector assisting with the work. These courses are very practical, being designed for agents at cream receiving stations and persons desiring to test milk or cream in a cream station or factory. Two lectures are given daily on the method of sampling, testing and handling of milk and cream. Four hours are spent each day in the testing laboratory where actual experience and practice in the Babcock testing of milk and cream is obtained. Students may enter at the beginning of any of these one-week courses in milk and cream testing, and for the year 1914 they will be offered during the weeks of January 5, January 12 and March 9.

6. INDUSTRIAL BUTTERMAKERS' COURSE

Besides the courses previously outlined, an industrial or training course for buttermakers is offered by the Department. This course is maintained throughout the entire year, and is offered in conjunction with the Four Weeks' Course in Creamery Buttermaking and Creamery Management. The instruction offered in this course includes ice cream making, dairy engineering, milk and cream testing, pasteurizing, starters, buttermaking, dairy farming and creamery management. Previous experience in creamery work is not required of applicants for this course, and only a limited number of students (probably 10 or 12) will be enrolled, as this number is all that the present buttermaking laboratory will accommodate. Students taking this course will be under the supervision of an expert buttermaker, and they will be directed by him while doing their work. This course is an intensely practical one, and persons desiring to fit themselves for positions as buttermakers, superintendents or managers of creameries and ice cream plants would do well to investigate this course. No tuition is required, and as soon as students become thoroughly trained in the work they will be recommended to positions.

7. COTTON GRADING COURSE

The Cotton Grading Course opens July 6. The purpose of this course is to supply the instruction demanded by growers, ginner, merchants and others who are particularly anxious to secure a better knowledge of cotton grades and valuations. One of the chief aims of the course is to make prominent the fact that careless methods of planting, seed selection, gathering, ginning and marketing must be changed, so that Oklahoma may compete with other cotton growing regions in the economical production of a superior quality of cotton. It is recognized that there are possibilities for improvement at each stage of handling, from the preparation of the ground until the crop is sold and delivered to the consumer. The instructors who have given these subjects expert study will readily give the student the benefit of their experience, so that any one taking the course may easily become better equipped to make his business more profitable and at the same time benefit the community materially. The general plan of the entire course is to confine the first part of the instruction to the producers, covering in a general way the topics of growing and marketing, while the second portion will chiefly be devoted to the ginner and dealers, covering in a broad way the subjects of ginning and shipping. The lectures on these lines will occupy the forenoon (from 9 to 12) of each day during the whole course, and in the afternoon of each day (from 2 to 4) cotton grading will occupy the attention of the classes. This will include instruction in the use of the score card, with the description of the various classes of cotton and their valuation. The exact schedule of the course is issued as a special pamphlet giving full details of all features of this work.

ENGINEERING DIVISION

R. E. CHANDLER, *Dean*

The Engineering Division embraces the courses in Mechanical Engineering, Electrical Engineering, Civil Engineering and Architectural Engineering. The Division also has charge of the instruction in Physics.

The subjects of the Engineering Division are taught by the following Departments :

The Department of Mechanical Engineering.

The Department of Electrical Engineering.

The Department of Civil Engineering.

The Department of Architectural Engineering.

The Department of English.

The Department of Mathematics and Astronomy.

The Department of Chemistry, Metallurgy and Mineralogy.

The Department of Political Economy and Social Science.

The Department of Pedagogy and History.

The Engineering courses are intended to prepare young men for positions of usefulness and responsibility in the mechanical, civil, electrical and architectural engineering professions.

This Division occupies two buildings: The Engineering Building and the Shop Building. Both of these buildings have been built within the last two years. The Engineering Building was erected in 1912 at a cost of \$75,000.00. It is of three stories, covers 160 by 80 feet, and is built of reinforced concrete and brick with stone trimmings. On the ground floor are located the steam and hydraulic laboratories and boiler room, the electrical laboratory, the civil engineering laboratories for testing cement, masonry and steel, rooms for surveying instruments, storage batteries, standardizing room, men's locker room, and offices for the Dean. On the next floor are the engineering library, the physical laboratory and lecture room, four other lecture rooms for the various Departments, and rooms for photometry, physical apparatus, stock and women's lockers, and offices for heads of departments. On the top floor are the quarters for the Department of Architec-

tural Engineering, consisting of a lecture room, library and reading room, large drafting room, and an office for the professor. There are also on this floor drafting and lecture rooms for the use of other Departments, rooms for records and offices for instructors.

The new Shop Building is of stone and brick, and covers 40 by 200 feet; for a depth of 80 feet it is two stories high and the balance one story. This building was constructed mainly by student labor and of materials from the old Shop, formerly occupying part of the site of the new Engineering Building. It provides accommodations for the carpenter, machine and blacksmith shops and foundry, and has up-to-date tool rooms, etc., complete.

The power plant of the College, with its steam boilers, steam engines, and generators, is also used by the Division for the purpose of making tests and familiarizing the students with the use of this class of machinery.

Outline of Courses in the Engineering Division Giving Subjects and Hours

The figure and letter following the departmental name signify the serial number of the subject and indicate the first (a), second (b), or third (c) term's work in the same subject. The name in parenthesis is the specific name of the subject, and the figures in column at the right of the name indicate the number of hours per week the subject is taught; classroom hours without parenthesis, practicum hours in parenthesis. The practicum period is two hours in length, and is equivalent to one hour classroom work in estimating number of hours per week to be taken. Military Science and drill are required of all male students in the course.

FRESHMAN YEAR

(Same for all Courses in the Division)

FALL TERM	WINTER TERM	SPRING TERM
English 1a.....4	English 1b.....4	English 1c.....4
Mathematics 1a.....5 (Algebra)	Mathematics 1b.....4 (Algebra)	Mathematics 1c.....3 (Algebra)
Mathematics 2a.....4 (Plane Geometry)	Mathematics 2b.....5 (Plane Geometry)	Mathematics 2c.....5 (Solid Geometry)
History 1a.....4 (American)	History 1b.....4 (Government)	Physics 1.....4 (2) (Ele. Physics)
Drawing 1a..... (4) (Ele. Drawing)	Mech. Eng. 1b..... (4) (Woodwork)	Mech. Eng. 2..... (8) (Foundry and Pattern Making)
Mech. Eng. 1a..... (4) (Woodwork)	Drawing 1b..... (4) (Object Drawing)	Pub. Speaking 1c..... (2) (Expression)
Pub. Speaking 1a..... (2) (Expression)	Pub. Speaking 1b..... (2) (Expression)	Physical Training
Physical Training	Physical Training	

SOPHOMORE YEAR

FALL TERM	WINTER TERM	SPRING TERM
English 2a.....4	English 2b.....4	English 2c.....4
Mathematics 3.....5 (Trigonometry)	Mathematics 4a.....3 (Analytics)	Mathematics 4b.....3 (Analytics)
Chemistry 1a.....3 (4) (Inorganic Chem.)	Chemistry 1b.....3 (4) (Inorganic Chem.)	Physics 2.....3 (4) (Electr. & Magn.)
Mech. Eng. 5.....3 (Mechanics)	Arch. Eng. 17a.....3 (4) (Descrip. Geom.)	Arch. Eng. 17b.....2 (4) (Descrip. Geom.)
Mech. Eng. 6a..... (6) (Mech. Drawing)	Mech. Eng. 6b..... (6) (Mech. Drawing)	Mech. Eng. 6c..... (4) (Mech. Drawing)
		Civil Eng. 1..... (4) (Surveying)

Mechanical Engineering**JUNIOR YEAR****FALL TERM**

Physics 4.....	3 (2)
(Heat & Mechanics)	
Mathematics 6a.....	4
(Calculus)	
Mech. Eng. 9a.....	(4)
(Adv. Mech. Draw.)	
Elec. Eng. 1a.....	2 (2)
(Ele. Elec. Eng.)	
Mech. Eng. 8.....	2
(Kinematics)	
Mech. Eng. 3a.....	(6)
(Blacksmithing)	
Mech. Eng. 10a.....	(4)
(Laboratory)	

WINTER TERM

Physics 3.....	3 (2)
(Sound & Light)	
Mathematics 6b.....	4
(Calculus)	
Civil Eng. 10a.....	5
(Applied Mech.)	
Elec. Eng. 1b.....	2 (2)
(Ele. Elec. Eng.)	
Mech. Eng. 11a.....	2
(Thermodynamics)	
Mech. Eng. 10b.....	(2)
(Laboratory)	

SPRING TERM

Mathematics 6c.....	4
(Calculus)	
Civil Eng. 10b.....	4
(Applied Mech.)	
Elec. Eng. 3.....	(2)
(Wiring & Distr.)	
Mech. Eng. 12.....	2
(Engines & Boilers)	
Mech. Eng. 4.....	(8)
(Machine Shop)	
Mech. Eng. 9b.....	(4)
(Adv. Mech. Draw.)	
Mech. Eng. 10c.....	(2)
(Laboratory)	
Mech. Eng. 11b.....	2
(Thermodynamics)	

SENIOR YEAR**FALL TERM**

Mech. Eng. 13a.....	3 (4)
(Machine Design)	
Elec. Eng. 7a.....	2 (2)
(Alt. Currents)	
Civil Eng. 18.....	3 (2)
(Str. of Materials)	
Mech. Eng. 14.....	3 (2)
(Hydraulics)	
Social Science 1.....	4
(Com. Usages)	

WINTER TERM

Mech. Eng. 13b.....	4 (2)
(Machine Design)	
Elec. Eng. 7b.....	2 (2)
(Alt. Currents)	
Mech. Eng. 15.....	3 (4)
(Gas Engines)	
Mech. Eng. 16.....	2 (4)
(Steam Power Plants)	
Mech. Eng. 17.....	1
(Seminar)	
Mech. Eng. 19a.....	(4)
(Thesis)	

SPRING TERM

Mech. Eng. 13c.....	2 (4)
(Machine Design)	
Elec. Eng. 7c.....	3 (2)
(Alt. Currents)	
Civil Eng. 20.....	3
(Contracts & Specifications)	
Mech. Eng. 18.....	3
(Heating & Ventilating)	
Elec. Eng. 12.....	2 (4)
(Electric Plants)	
Mech. Eng. 19b.....	(4)
(Thesis)	

Electrical Engineering**JUNIOR YEAR****FALL TERM**

Physics 4.....	3 (2)
(Heat & Mechanics)	
Mathematics 6a.....	4
(Calculus)	
Mech. Eng. 9a.....	(4)
(Adv. Mech. Draw.)	
Elec. Eng. 1a.....	2 (2)
(Ele. Elec. Eng.)	
Mech. Eng. 3a.....	(6)
(Blacksmithing)	
Elec. Eng. 2a.....	1
(Seminar)	
Mech. Eng. 10a.....	(4)
(Laboratory)	

WINTER TERM

Physics 3.....	3 (2)
(Sound & Light)	
Mathematics 6b.....	4
(Calculus)	
Civil Eng. 10a.....	5
(Applied Mech.)	
Elec. Eng. 1b.....	2 (2)
(Ele. Elec. Eng.)	
Mech. Eng. 11a.....	2
(Thermodynamics)	
Elec. Eng. 2b.....	1
(Seminar)	
Mech. Eng. 10b.....	(2)
(Laboratory)	

SPRING TERM

Mathematics 6c.....	4
(Calculus)	
Civil Eng. 10b.....	4
(Applied Mech.)	
Elec. Eng. 3.....	(2)
(Wiring & Distr.)	
Elec. Eng. 5.....	2 (4)
(Electro Chem.)	
Mech. Eng. 4.....	(8)
(Machine Shop)	
Elec. Eng. 2c.....	1
(Seminar)	
Mech. Eng. 11b.....	2
(Thermodynamics)	

SENIOR YEAR**FALL TERM**

Mech. Eng. 13a.....	3 (4)
(Machine Design)	
Civil Eng. 18.....	3 (2)
(Str. of Materials)	
Elec. Eng. 6.....	2 (2)
(Photometry & Light)	
Elec. Eng. 7a.....	2 (2)
(Alt. Currents)	
Elec. Eng. 8a.....	1
(Seminar)	
Social Science 1.....	4
(Com. Usages)	

WINTER TERM

Mech. Eng. 13b.....	4 (2)
(Machine Design)	
Mech. Eng. 16.....	2 (4)
(Steam Power Plants)	
Elec. Eng. 9.....	2 (2)
(Dynamo Design)	
Elec. Eng. 10.....	1 (2)
(High Voltage Transmission)	
Elec. Eng. 7b.....	2 (2)
(Alt. Currents)	
Elec. Eng. 8b.....	1
(Seminar)	
Elec. Eng. 11.....	1 (2)
(Elec. Railways)	

SPRING TERM

Civil Eng. 20.....	3
(Contracts & Specifications)	
Elec. Eng. 12.....	2 (4)
(Electric Plants)	
Elec. Eng. 13.....	1 (2)
(Sub-Stations & Switchboards)	
Elec. Eng. 7c.....	3 (2)
(Alt. Currents)	
Elec. Eng. 8c.....	1
(Seminar)	
Elec. Eng. 14.....	2
(Tel. & Tel.)	
Elec. Eng. 15.....	1
(Wireless Teleg.)	
Elec. Eng. 16.....	(6)
(Thesis)	

Civil Engineering

JUNIOR YEAR

FALL TERM	WINTER TERM	SPRING TERM
Physics 4.....3 (2) (Heat & Mechanics)	Physics 3.....3 (2) (Sound & Light)	Civil Eng. 6.....3 (Roads & Pavement)
Mathematics 6a.....4 (Calculus)	Mathematics 6b.....4 (Calculus)	Mathematics 6c.....4 (Calculus)
Civil Eng. 2.....2 (4) (Topo. Surveying)	Civil Eng. 4.....1 (4) (Graphics)	Civil Eng. 5.....2 (6) (Roof Trusses)
Civil Eng. 3.....2 (4) (Railroad Curves)	Mech. Eng. 3b.....(2) (Blacksmithing)	Mech. Eng. 4.....(8) (Machine Shop)
Elec. Eng. 1a.....2 (2) (Ele. Elec. Eng.)	Elec. Eng. 1b.....2 (2) (Ele. Elec. Eng.)	Civil Eng. 10b.....4 (Applied Mech.)
Arch. Eng. 4.....(2) (Lettering)	Civil Eng. 10a.....5 (Applied Mech.)	

SENIOR YEAR

FALL TERM	WINTER TERM	SPRING TERM
Civil Eng. 7.....(2) (Retaining Walls & Dams)	Civil Eng. 14.....4 (Masonry Const.)	Arch. Eng. 12.....2 (Estimates)
Civil Eng. 8.....2 (Irrigation Eng.)	Civil Eng. 15.....3 (Reinforced Con.)	Civil Eng. 20.....3 (Contracts & Specifications)
Civil Eng. 11.....3 (2) (Hydraulics)	Civil Eng. 16.....4 (Sanitary Eng.)	Civil Eng. 17.....4 (Water Supply)
Civil Eng. 12.....3 (4) (Bridge Stresses)	Civil Eng. 13a.....1 (6) (Bridge Design)	Civil Eng. 13b.....1 (6) (Bridge Design)
Civil Eng. 18.....3 (2) (Str. of Materials)	Civil Eng. 19a.....2 (Railroad Eng.)	Civil Eng. 19b.....2 (Railroad Eng.)
Social Science 1.....4 (Com. Usages)	Civil Eng. 21a.....1 (Seminar)	Civil Eng. 21b.....1 (Seminar)
	Civil Eng. 22.....(4) (Testing Lab.)	Civil Eng. 23.....(8) (Thesis)

Architectural Engineering

JUNIOR YEAR

FALL TERM	WINTER TERM	SPRING TERM
Physics 4.....3 (2) (Heat & Mechanics)	Physics 3.....3 (2) (Sound & Light)	Elec. Eng. 3.....(2) (Wiring & Distr.)
Mathematics 6a.....4 (Calculus)	Mathematics 6b.....4 (Calculus)	Mathematics 6c.....4 (Calculus)
Arch. Eng. 1.....5 (Building Materials)	Civil Eng. 4.....1 (4) (Graphics)	Civil Eng. 5.....2 (6) (Roof Trusses)
Arch. Eng. 2.....3 (History of Arch.)	Civil Eng. 10a.....5 (Applied Mech.)	Civil Eng. 10b.....4 (Applied Mech.)
Arch. Eng. 3.....(6) (Working Drawings)	Arch. Eng. 5.....2 (Plumbing)	Arch. Eng. 7.....(4) (Orders of Arch.)
Arch. Eng. 4.....(2) (Lettering)	Arch. Eng. 6.....(4) (Building Details)	Arch. Eng. 8.....(4) (Perspective)
		Arch. Eng. 9.....(4) (Pen & Ink Rend.)

SENIOR YEAR

FALL TERM	WINTER TERM	SPRING TERM
Civil Eng. 12.....3 (4) (Bridge Stresses)	Civil Eng. 14.....4 (Masonry Const.)	Mech. Eng. 18.....3 (Heating & Ventilating)
Civil Eng. 18.....3 (2) (Str. of Materials)	Civil Eng. 15.....3 (Reinforced Con.)	Civil Eng. 20.....3 (Contracts & Specifications)
Arch. Eng. 10a.....(6) (Arch. Design)	Civil Eng. 22.....(4) (Testing Lab.)	Arch. Eng. 12.....2 (Estimates)
Arch. Eng. 14a.....1 (Seminar)	Arch. Eng. 10b.....(10) (Arch. Design)	Arch. Eng. 14c.....1 (Seminar)
Arch. Eng. 18.....(2) (Ornament)	Arch. Eng. 11.....3 (Steel Con.)	Arch. Eng. 13.....2 (Superintendence)
Drawing 7a.....(4) (Water Colors)	Arch. Eng. 14b.....1 (Seminar)	Arch. Eng. 15b.....(18) (Thesis)
Social Science 1.....4 (Com. Usages)	Drawing 7b.....(4) (Water Colors)	

Department of Mechanical EngineeringR. E. CHANDLER, *Professor*CHARLES JABLOW, *Assistant Professor*E. E. BREWER, *Foreman of Shops*C. W. SKINNER, *Instructor in Wood Shop*F. R. BRADLEY, *Instructor in Machine Shop*

The object of the instruction offered in this Department is to train young men in a broad way for successful careers in the profession of Mechanical Engineering.

A graduate of this Department has as his working tools, a knowledge of the fundamental principles underlying the design, construction, operation and testing of steam boilers and engines; turbines; gas, compressed air and refrigerating machinery. These subjects are developed by thorough courses in mechanical drawing, in thermodynamics, in steam and gas engineering, and also courses in applied mechanics and hydraulics.

The economic side of engineering is not forgotten in the discussions of the use of various engineering apparatus.

To supplement these courses a student has the broadening influences, due to requirements of a certain amount of work in other engineering courses, such as electrical engineering, contracts and specifications, surveying and others.

The early part of the course is devoted to a thorough ground-work in English, mathematics and physics. Practical work in the College Shops is begun as soon as the student has progressed sufficiently to understand the reasons for the various operations.

Commencing with the Sophomore year, considerable time each week is devoted to mechanical drawing, which is continued throughout the remainder of the course, either as such, or as a part of other courses, such as power plant design, machine design, etc. A strong course in descriptive geometry is carried throughout the two terms of the Sophomore year, being of great assistance in mechanical drawing and designing work of the Junior and Senior years. The problems set and the work done in these courses are of an eminently practical nature.

The Junior year marks the beginning of the work in mechanical engineering, as differentiated from civil, electrical and archi-

tectural. The work consists of the study of mechanical movements, with their application to practical problems on the drawing board, the consideration of the theory of steam and other heat engines, both in the classroom and in the laboratory, and a course in steam boiler design. Together with these mechanical engineering courses, very thorough instruction in physics (including sound, light and electricity and magnetism), applied mechanics, and more advanced mathematics is given in this stage of advancement in the course.

The laboratory work in the Mechanical Engineering course is done according to a well considered schedule. The student is usually assigned an experiment a week or more in advance, and is expected to come to the laboratory prepared to do the work assigned. The results of the experiment are reported, the students making their own observations and calculations, and writing out in detail exactly the work that has been done, and the results obtained. The work is carefully supervised, the reports graded and returned to the student for corrections. This laboratory work is carried throughout the entire Junior year and part of the Senior year.

In the Junior year, also, considerable work is done in the forge and machine shops; the conditions being made to approach modern manufacturing practice as nearly as possible. To make hand and mind work in synchronism is the aim of the Department.

The work of the Senior year is of a more technical nature. Broad theoretical and practical courses in machine design, heating and ventilating, mechanics of materials, gas engine design and operation, and the design of complete steam and electric power plants are given.

Each Senior student is required to write a thesis, giving the results of original research, or some important testing or designing work which he has carried on during the year.

All more advanced students are required to visit practically all the power plants and industrial establishments in Stillwater and vicinity and submit a paper, which is read to the class, in

which the good or bad features of the plant are brought out, and also the economic reasons for its existence in its present location and condition, are given.

The work of the various divisions has been carefully balanced so that a student gets a well rounded and well balanced technical education.

There are four drawing rooms, two of which are devoted to work in Mechanical Engineering. The Sophomore room accommodates forty-eight students, the Junior and Senior room thirty-two. These rooms are well lighted, and the appearance of the place is an incentive to good work. Students are permitted the use of the room from 8:00 a. m. to 5:30 p. m. for the utilization of spare moments during the day.

The mechanical laboratory equipment is found in the material testing laboratory, steam laboratory and the hydraulic laboratory. Use is also made of the equipment at the College power plant, for fuel tests, pump tests, moisture tests, of steam and various other experiments.

In the material testing laboratory is a 100,000-pound Reihle testing machine, an impact testing machine, two large cases containing instruments for making tests, and various other equipment for carrying on the work to best advantage.

The steam laboratory is equipped with a horizontal, return tubular boiler for experimental purposes. Steam from this boiler is piped to injectors, two steam engines, a locomotive type air compressor, and a large manifold for testing thermometers, gauges, indicators, etc. Besides the above mentioned apparatus, this laboratory contains two horizontal gasoline engines and one four-cylinder automobile engine. Numerous gauges, thermometers, calorimeters and other small apparatus, several prony brakes and one Alden absorption dynamometer are available for carrying on tests in the laboratory and for thesis work.

The hydraulic laboratory contains a Pelton wheel, a hydraulic ram, a motor-driven centrifugal pump, apparatus for determining flow, over weirs, in flumes, through sewer tile, in pipe lines, through orifices and for various other hydraulic experiments.

The forge shop has twenty-four down-draft forges, air being supplied by a forced-blast fan, and smoke being exhausted through hoods by a vacuum exhaust system. A power hammer has been installed recently. The foundry has an 18-inch cupola, core oven and sifter, foundry benches and tools. A large pit in the floor is used for a casting bed.

The Machine Shop is equipped with lathes, shapers, milling machine, planer, universal grinder, drill presses, pipe cutting machines, and an extensive assortment of small tools, well kept in a carefully arranged toolroom. Stress is laid on accuracy of measurement.

The Woodworking and Pattern Shop is equipped with a circular saw, a band saw, surfacer, wood turning lathes, pattern-makers' lathes, and work benches, with a complete equipment of tools. Each student is assigned a kit of small tools, which are his to use and to keep in order as long as he works in that Department.

SUBJECTS

- 1 *a-b*. WOODWORKING.—Freshman year, fall and winter terms; four hours practicum per week. Required: Engr., Agr. (1*a* winter term), Sci. & Lit. (1*a* winter term—men), Normal (1*a* winter term—men).

Bench work in wood; sawing, planing and joining; center and chuck turning in wood; instruction in care and use of tools.

2. PATTERNMAKING AND FOUNDRY.—Freshman year, spring term; eight hours practicum per week. Required: Engr. Prerequisites: M. E. 1*a*, 1*b*.

Construction of patterns; molding in sand; core making; melting iron and pouring castings.

- 3 *a*. BLACKSMITHING.—Junior year, fall term; six hours practicum per week. Required: M. E., E. E.

Iron and steel forging; drawing; upsetting; welding and tempering.

- 3 *b*. BLACKSMITHING.—Junior year, winter term; two hours practicum per week. Required: C. E., Agr. (Freshman year, fall term).

4. MACHINE SHOP.—Junior year, spring term; eight hours practicum per week. Required: M. E., E. E., C. E.

Filing and chipping; metal work on lathes, planer, shaper and milling machine.

5. MECHANICS.—Sophomore year, fall term; three hours theory per week. Required: Engr. Prerequisite: Math. 2c.
Elementary course in mechanics, including statics and kinetics.
- 6 a-b-c. MECHANICAL DRAWING.—Sophomore year, fall, winter and spring terms; six hours practicum per week, fall and winter terms; four hours practicum per week, spring term. Required: Engr.
Fall term: Lettering and use of instruments. Winter term: Drawing from copy. Spring term: Elementary design.
8. KINEMATICS.—Junior year, fall term; two hours theory per week. Required: M. E. Prerequisites: M. E. 6a, 6b.
Study of mechanical movements, including gearing, belting, links, etc.
- 9 a-b. ADVANCED MECHANICAL DRAWING.—Junior year, fall and spring terms; four hours practicum per week. Required: M. E., E. E. (9a). Prerequisites: M. E. 6a, 6b, 6c.
Design of gears and cams, and elementary machine design, fall term. Boiler design, spring term.
- 10 a-b-c. MECHANICAL LABORATORY.—Junior year, fall, winter and spring terms; four hours practicum per week, fall term; two hours practicum per week, winter and spring terms. Required: M. E., E. E. (10a, 10b).
Tests on various engineering appliances, engines, etc.
- 11 a-b. THERMODYNAMICS.—Junior year, winter and spring terms; two hours theory per week. Required: M. E., E. E. Prerequisite: Math. 6a.
Study of thermodynamics of steam engines, air engines and gas engines.
12. STEAM ENGINES AND BOILERS.—Junior year, spring term; two hours theory per week. Required: M. E.
Study of steam engines and boilers, and auxiliaries.
- 13 a-b-c. MACHINE DESIGN.—Senior year, fall, winter and spring terms; three hours theory and four hours practicum per week, fall term; four hours theory and two hours practicum per week, winter term; two hours theory and four hours practicum per week, spring term. Required: M. E., E. E. (13a, 13b).
The fall and winter terms are spent in the design of mechanical parts. Spring term, engine design. The practicum will be drafting work, design, machines and machine parts.

14. **HYDRAULICS.**—Senior year, fall term; three hours theory and two hours practicum per week. Required: M. E. Prerequisites: Math. 6a, M. E. 10a, 10b, 10c.
Study of hydraulics and waterpower development.
15. **GAS ENGINES.**—Senior year, winter term; three hours theory and four hours practicum per week. Required: M. E. Prerequisites: M. E. 10a, 10b, 10c, 11a, 11b.
A study of internal combustion engines and gas producers. Practicum will be the testing of gas engines.
16. **STEAM POWER PLANTS.**—Senior year, winter term; two hours theory and four hours practicum per week. Required: M. E., E. E. Prerequisites: M. E. 10a, 10b, 10c.
Study and design of steam power plants.
17. **SEMINAR.**—Senior year, winter term; one hour theory per week. Required: M. E.
Discussion of articles in leading technical magazines.
18. **HEATING AND VENTILATING.**—Senior year, spring term; three hours theory per week. Required: M. E., A. E.
Study of steam, hot water, gravity and forced hot air systems of heating.
- 19 *a-b*. **THESIS.**—Senior year, winter and spring terms; four hours practicum per week. Required: M. E.
Original experiments, investigation or design in some branch of Mechanical Engineering.

Department of Electrical Engineering and Physics

ARLINGTON P. LITTLE, *Associate Professor*

OSCAR L. BRITT, *Assistant*

The Electrical Engineering course gives the student a thorough working knowledge of the fundamental principles underlying the operation of electrical machinery. It is expected that after obtaining the proper practical experience the graduate will be able to act successfully as a designer or manager in any of the electrical industries or to take charge of construction work.

A thorough mathematical preparation is essential to the more advanced electrical courses, especially those in alternating currents. The courses on the theory of electrical machinery are supplemented by practice in calculating and designing such machines in the drawing room.

In the Junior and Senior years, the work is carried on by lectures, recitations and laboratory practice in the management

and testing of electrical machinery. The lectures and recitations cover explanations of theoretical principles underlying the action of the various machines and apparatus, together with discussions of modern practice in all the important subdivisions of electrical engineering. Laboratory practice consists in performing experiments, making measurements and testing machines and apparatus, similar to the commercial testing carried on by manufacturing companies. This work includes electrical measurements; theory, design and testing of rotary converters and transformers; storage batteries, arc and incandescent lamp testing; power plant and sub-station design; long distance power transmission, and systems of power distribution; electric lighting, electrical wiring; telegraph and telephone engineering, wireless telegraphy, etc.

In the new Engineering Building considerable space has been set aside for the electrical testing and experimental laboratories.

The main or commercial testing electrical laboratory is located on the first floor of the new Engineering Building. The electrical equipment has been selected and arranged in such a manner as to afford students the greatest facility for acquiring a thorough knowledge of different types of electrical machinery, their management and methods of testing. Especial attention has been devoted to alternating current machinery—justified it is believed, by the rapid development of this branch of engineering. Power is furnished by a 30 k. w., a 40 k. w. and a 100 k. w. dynamo, directly connected to automatic engines. The other electrical machines consist of direct current series shunt and compound dynamos and motors, alternating current transformers, Scott phase-changing transformers, 2-phase and 3-phase rotary converters, single-phase, 2-phase, and 3-phase induction motors, all of latest design. The laboratory is well supplied with all necessary measuring instruments, including voltmeters, ammeters, and wattmeters of wide range for alternating and direct current, tachometers, etc., as well as galvanometers and other instruments of great precision. Two rooms are devoted to photometric work. These contain a photometer with accessories and light standards and the principal types of arc and incandescent lamps. Tests are made on these lamps to determine their efficiency, candlepower, distribution of light, the construction and general characteristics. As standards of comparison in the photometric work there are

used lamps carefully tested by the United States Bureau of Standards.

North of the main electrical laboratory is the standardization laboratory, and it is equipped with a Weston standard voltmeter, a Leeds and Northup potentiometer and other standard instruments. At the beginning of each year the electrical instruments are standardized by comparison with the potentiometer, in order that electrical measurements made in performing laboratory experiments may be accurate.

Adjoining the standardization laboratory is the storage battery room in which is placed the 220-volt storage battery for the Leeds and Northup potentiometer, the battery for operating the class-bell system, and other batteries for experimental purposes.

The wireless telegraph room is located on the top floor of the Engineering Building. The equipment consists in part of a 1,000-watt, oil cooled transformer, keys for heavy currents, sending helix, receiving transformers of the direct and inductively coupled types, condensers, potentiometers, 3,000-ohm and 1,000-ohm head phones, switches, batteries, etc. With a suitable aerial the station has a range of several hundred miles. The power wires running from the main electrical laboratory to the wireless telegraph room are of sufficient size to permit the use of a 12,000-watt 220-volt transformer.

The lecture room is provided with terraced seats to permit students to readily see experiments performed on the lecture table. It is equipped with a combination lantern slide and opaque projectroscope which is used in illustrated lectures.

The large laboratory on the second floor, although intended primarily as a general physics laboratory, will be used also for elementary electrical experiments, also for electroplating, electrotyping, electrolytic refining of metals and general electrometallurgy.

The facilities of the laboratories in the Senior year are to be employed in the preparation of a graduating thesis, and original work is required of each student. For original experiments in this connection, instruments of high precision are placed at the disposal of Senior students, and the workshops of the College afford opportunity for the construction of special apparatus.

The courses offered in physics embrace mechanics, pneumat-

ics, hydrostatics, heat, sound, light, electricity and magnetism. The lectures and recitations are supplemented by practice work in the physics laboratory.

SUBJECTS

- 1 *a-b*. ELEMENTS OF ELECTRICAL ENGINEERING.—Junior year, fall and winter terms; two hours theory and two hours practicum per week. Required: M. E., E. E., C. E. Prerequisite: Physics 2.

Electro-magnetic systems of units; switchboards; theory and practical management of direct current dynamos and motors.

- 2 *a-b-c*. JUNIOR SEMINAR.—Fall, winter and spring terms; one hour theory per week. Required: E. E.

Discussion of articles on electrical engineering in technical magazines.

3. ELECTRICAL WIRING AND DISTRIBUTION OF POWER.—Junior year, spring term; two hours practicum per week. Required: M. E., E. E., A. E.

Systems of direct and alternating current; distribution of power; testing; practical lighting and motor wiring.

5. ELECTRO CHEMISTRY.—Junior year, spring term; two hours theory and four hours practicum per week. Required: E. E. Prerequisites: Physics 2, Chem. 1a, 1b.

Electrolytic refining of metals; electroplating, electrotyping; polishing and burnishing; electric furnace work; care and management of storage batteries.

6. PHOTOMETRY AND ELECTRIC LIGHTING.—Senior year, fall term; two hours theory and two hours practicum per week. Required: E. E.

The underlying principles of illuminating engineering; study and test of arc and incandescent lamps; practice in laying out wiring plans for buildings; specifications covering these plans.

- 7 *a-b-c*. ALTERNATING CURRENTS AND ALTERNATING CURRENT MACHINERY.—Senior year, fall, winter and spring terms; two hours theory and two hours practicum per week, fall and winter terms; three hours theory and two hours practicum per week, spring term. Required: M. E., E. E. Prerequisites: E. E. 1a, 1b, Math. 6a, 6b, 6c.

Theory of alternating currents and alternating machinery; measuring instruments; commercial testing of alternators; alternating current motors and transformers.

- 8 *a-b-c*. SENIOR SEMINAR.—Fall, winter and spring terms; one hour theory per week. Required: E. E.

Discussion of important articles on advanced electrical engineering work in technical magazines and the Transactions of American Institute of Electrical Engineers.

9. DYNAMO DESIGN.—Senior year, winter term; two hours theory and two hours practicum per week. Required: E. E. Prerequisites: E. E. 1a, 1b.

Design of direct current generators and motors and their controlling devices, and comparison of results with commercial machinery of same rating.

10. HIGH VOLTAGE TRANSMISSION.—Senior year, winter term; one hour theory and two hours practicum per week. Required: E. E. Prerequisite: E. E. 7a.

Calculation of high voltage transmission lines; discussion of the special difficulties encountered in long distance power transmission; details of line construction.

11. ELECTRIC RAILWAYS.—Senior year, winter term; one hour theory and two hours practicum per week. Required: E. E. Prerequisite: E. E. 7a.

Direct and alternating current railway systems; overhead construction; rotary converters; transformer sub-stations; electrification of steam railroads; train performance diagrams.

12. POWER PLANT DESIGN.—Senior year, spring term; two hours theory and four hours practicum per week. Required: M. E., E. E. Prerequisites: E. E. 1a, 1b, 7a, 7b.

Design of alternating current and direct current isolated power plants and central stations.

13. SUB-STATIONS AND SWITCHBOARDS.—Senior year, spring term; one hour theory and two hours practicum per week. Required: E. E. Prerequisites: E. E. 1a, 1b, 7a, 7b.

Location of rotary converter and transformer sub-stations; low and high potential switchboards; arrangement of apparatus and instruments; details of wiring.

14. TELEGRAPH AND TELEPHONE ENGINEERING.—Senior year, spring term; two hours theory per week. Required: E. E. Prerequisites: E. E. 1a, 1b.

A study of the principal telephone and telegraph systems; relays; repeaters; duplex and quadruplex telegraph; high speed telegraphy; writing and printing telegraph.

15. WIRELESS TELEGRAPHY.—Senior year, spring term; one hour theory per week. Required: E. E. Prerequisites: E. E. 7a, Physics 2.

A study of the various systems of wireless telegraphy; plain and sytonic; erecting stations; adjusting apparatus and sending and receiving signals.

16. THESIS.—Senior year, spring term; six hours theory per week. Required: E. E.

Original experiments and investigations in some important branch of electrical engineering.

PHYSICS

1. **ELEMENTARY PHYSICS.**—Freshman year, spring term; four hours theory and two hours practicum per week. Required: Engr., Sci. & Lit., Dom. Sci., Normal. Prerequisite: Math. 1a.

Force, power, work, energy; simple machines; properties of solids, liquids and gases; absolute and gravitational units; composition and resolution of forces; specific gravity; measurement of temperature; fusion; vaporization; specific heat; conduction, convection and radiation.

2. **ELECTRICITY AND MAGNETISM.**—Sophomore year, spring term; three hours theory and four hours practicum per week. Required: Engr. Elective: Sci. & Lit. (Junior), Normal (Junior). Prerequisite: Math 3.

Electric attraction and repulsion; the electroscope; induction; condensers; capacity; primary and secondary batteries; Ohms law; calculation of resistance; electrical measuring instruments; electrolysis; electromotive force and current; Wheatstone bridge; natural and artificial magnets; field of force; the compass; electromagnets; the telegraph and telephone.

3. **SOUND AND LIGHT.**—Junior year, winter term; three hours theory and two hours practicum per week. Required: M. E., E. E., C. E., A. E. Elective: Sci. & Lit., Normal. Prerequisite: Math 3.

Sound waves, simple and complex; transmission and reflection of sound; resonance; musical sound waves; transverse and longitudinal vibrations; pitch and quality; interference. Light waves; photometry; velocity of light; reflection; refraction; mirrors; plane, convex and concave lenses; construction and theory of the telescope, microscope and other optical instruments; the spectroscopic and spectrum analysis; polarization of light.

4. **HEAT AND MECHANICS (advanced course).**—Junior year, fall term; three hours theory and two hours practicum per week. Required: M. E., E. E., C. E., A. E. Elective: Sci. & Lit., Normal. Prerequisite: Math. 3.

Kinematics; dynamics; statics; fluid motion; buoyancy; elasticity; mechanics of liquids and gases; thermometry; heat engines.

5. **ELEMENTARY PHYSICS.**—Freshman year, fall term; four hours theory and two hours practicum per week. Required: Agr. Prerequisite: Sub-Fresh. Algebra.

Motion and force; acceleration; composition and resolution of forces; centrifugal forces; the pendulum; principle of moments; molecular forces; Boyle's law; buoyancy, specific gravity; the barometer; temperature and thermometers; measurements of heat; change of state; conduction, convection and radiation.

Department of Civil Engineering*ALFRED BOYD, Professor*

The work in this Department is designed to furnish a thorough course of theoretical and practical instruction in the various branches of civil engineering. During the first two years the work is the same as in other engineering departments.

This Department is well supplied with surveying instruments, including transits, wye and dumpy levels, railroad compass, plane table, barometer, hand-levels, clinometer, chains, tapes and rods.

The laboratory for testing cement and road materials occupies the northwest corner of the basement floor in the Engineering Building. It is provided with the usual apparatus for the testing of cement, including a Fairbanks' and an Olsen briquette machine, molds for making briquettes, sieves for testing sand and cement, moist closet, boiling apparatus, Vicat and Gillmore needles, specific gravity and permeability apparatus. Ample facilities are thus furnished for the testing of cement and concrete, and use is also made of the 100,000-pound Riehle testing machine. The machines for testing road materials are also in this laboratory, and include an abrasion machine, a hardness machine, impact machine, diamond drill, saw and crusher.

The testing of the various materials used in construction, such as wood, steel, cast iron, brick, stone, etc., is required of all engineering students during the fall term.

The theoretical instruction in hydraulics is supplemented by work in the hydraulic laboratory. This is provided with water from the city mains, and water is also supplied by means of a centrifugal pump raising water from a concrete pit in the laboratory to a steel tank on the roof. Measurements of flow are made for weirs, nozzles, sewer pipe and flumes. Tests of a Pelton wheel, of a centrifugal pump, and field measurements of flow by means of a current meter are also made.

The drawing room for this department is well equipped. There is a good collection of working drawings and designs, which are used for reference in connection with the work in several of the courses.

SUBJECTS

1. SURVEYING.—Sophomore year, spring term; four hours practicum per week. Required: Engr. Elective: Sci. & Lit. (Junior), Normal (Junior).

Theory, use and adjustment of instruments; field work, computations and reports, maps and profiles; U. S. land surveying, court decisions and deeds.

2. TOPOGRAPHIC SURVEYING.—Junior year, fall term; two hours theory and four hours practicum per week. Required: C. E.

Theory of plane table and stadia; different methods of making topographic surveys; use of the barometer and base line apparatus; a complete survey and topographic map, based on a system of triangulation, is made by plane table and stadia methods; topographic signs.

3. RAILROAD CURVES.—Junior year, fall term; two hours theory and four hours practicum per week. Required: C. E.

The geometry of the simple, compound, reverse and transition curve is considered; turnouts; computation of earthwork; field practice in laying out curves. A complete survey is made of a short line of railroad; maps and profiles are made in the office, and cost computed.

4. GRAPHICS.—Junior year, winter term; one hour theory and four hours practicum per week. Required: C. E., A. E.
- Graphical analysis of structures. Stresses in roof trusses due to dead and wind loads.

5. ROOF TRUSSES.—Junior year, spring term; two hours theory and six hours practicum per week. Required: C. E., A. E.
- Stresses by algebraic methods. A complete design is made of a truss in wood and one in steel. Computations are made and a study of the practical details of construction.

6. ROADS AND PAVEMENTS.—Junior year, spring term; three hours theory per week. Required: C. E.

A study of the best methods of construction and maintenance of different types of country roads and city pavements, including allowable grades, drainage and methods of assessment.

7. RETAINING WALLS AND DAMS.—Senior year, fall term; two hours practicum per week. Required: C. E.

Earth and water pressure; stability of walls and dams; design of walls and foundations.

8. IRRIGATION ENGINEERING.—Senior year, fall term; two hours theory per week. Required: C. E.

Grades, cross-sections, and capacity of canals; surveys; designs of structures; sources of water supply; analysis of hydrographic data; Oklahoma streams; return and seepage water; application to crops; irrigation by pumping; irrigation law.

- 10 *a-b*. APPLIED MECHANICS.—Junior year, winter and spring terms; five hours theory per week, winter term; four hours theory per week, spring term. Required: M. E., E. E., C. E., A. E. Prerequisite: Math. 6a.
Center of gravity; moment of inertia; theory of structures; friction; cables; work and energy; impact; motion.
11. HYDRAULICS.—Senior year, fall term; three hours theory and two hours practicum per week. Required: C. E.
Pressure and motion of water; laws of flow over weirs, through orifices, tubes, nozzles, pipes, conduits, canals and rivers; meters and measurements of discharge; motors, turbines and water-wheels.
12. BRIDGE STRESSES.—Senior year, fall term; three hours theory and four hours practicum per week. Required: C. E., A. E.
Analysis of different types of bridges and other framed structures; design of abutments and piers.
- 13 *a-b*. BRIDGE DESIGN.—Senior year, winter and spring terms; one hour theory and six hours practicum per week. Required: C. E.
A complete design, with detailed drawings, is made of a plate girder bridge, a steel truss, and a short-span, reinforced concrete arch.
14. MASONRY CONSTRUCTION.—Senior year, winter term; four hours theory per week. Required: C. E., A. E.
Materials of construction, including cement, concrete, brick and stone; fireproofing. Ordinary and deep foundations.
15. REINFORCED CONCRETE.—Senior year, winter term; three hours theory per week. Required: C. E., A. E.
Theory and practice in the design of reinforced concrete.
16. SANITARY ENGINEERING.—Senior year, winter term; four hours theory per week. Required: C. E.
The design and construction of sewerage systems; separate and combined systems; size of sewers; plans and estimates of cost; construction; modern methods of sewage disposal.
17. WATER SUPPLY.—Senior year, spring term; four hours theory per week. Required: C. E.
Source and supply; methods of furnishing, purifying and distributing; design of reservoirs, tanks and standpipes.
18. STRENGTH OF MATERIALS.—Senior year, fall term; three hours theory and two hours practicum per week. Required: M. E., E. E., C. E., A. E.
Strength and deflection of beams, girders and columns; shafts; strength of pipe.

- 19 *a-b*. RAILROAD ENGINEERING.—Senior year, winter and spring terms; two hours theory per week. Required: C. E.
Methods of construction and maintenance of roadbed and structures; surveys and estimates; organization; signalling; economic theory as applied to location and operation.
20. CONTRACTS AND SPECIFICATIONS.—Senior year, spring term; three hours theory per week. Required: M. E., E. E., C. E., A. E.
The law of contracts as applied to engineering practice; the technical features of specifications; relation of engineer and contractor.
- 21 *a-b*. CIVIL ENGINEERING SEMINAR.—Senior year, winter and spring terms; one hour theory per week. Required: C. E.
Readings and reports on current civil engineering subjects, as discussed in technical magazines.
22. TESTING LABORATORY.—Senior year, winter term; four hours practicum per week. Required: C. E., A. E.
Laboratory examinations of the various materials of construction.
23. THESIS.—Senior year, spring term; eight hours practicum per week. Required: C. E.
Original investigations of some engineering subjects.

Department of Architectural Engineering

FREDERIC CHILD BIGGIN, *Professor*

The course offered by this Department is arranged to prepare students for handling with confidence the problems of structural designing and superintendence that come up in the modern architect's office, and to provide the measure of artistic training required to equip them for the successful practice of the profession of Architectural Engineering.

A strong foundation in English, mathematics, physics, mechanical and freehand drawing is laid during the Freshman and Sophomore years, and supplemented by practical work in the College Shops.

With the Junior year begins the study of Architectural Engineering, as distinguished from Mechanical, Electrical and Civil Engineering. Thorough instruction is given in building materials and construction, historical study of architectural styles and the Greek and Roman orders, applied mechanics, graphics, roof trusses, and the preparation of working drawings and details.

Advanced problems in shades, shadows and perspective, with pen and ink rendering, are also taken up in the Junior year.

The Senior year is devoted almost entirely to technical subjects, both theoretical and practical. Strength of materials, masonry, reinforced concrete and steel construction, and their application to fireproof buildings, are covered in a thorough manner. Much time is given to architectural design, heating and ventilating, specifications, estimates of cost and superintendence. A strong course is included in commercial law and its relation to contracts.

Each Senior student prepares for his thesis preliminary sketches and complete working plans of a steel or reinforced concrete, fireproof office or commercial building, including computations for structural work. Running through the entire Senior year is a seminar of professional subjects, in which, by lectures, selected courses of reading and discussions, matters of general interest are taken up and a correct attitude on professional ethics and practice developed.

All the equipment of the entire Engineering Division is used for instruction in Architectural Engineering. In the Shops students learn the principles of carpentry, and the properties of iron and steel castings. The Electrical Engineering laboratory affords practical instruction in wiring and lighting of buildings. In the Mechanical Engineering laboratory investigations are made on the heating and ventilating of buildings. The Civil Engineering testing laboratory is used for instruction in methods of testing and determining the strength of cements, mortars, brick, stone, steel and other building materials.

SUBJECTS

1. BUILDING MATERIALS AND CONSTRUCTION.—Junior year, fall term; five hours theory per week. Required: A. E.
Properties and uses of various woods; grading and inspection of lumber; methods of framing and joining; stonecutting and masonry; plastering; ornamental iron and sheet metal work; roofing; insulating and sound-deadening materials; tiling and mosaic; glazing; paints; hardware: elevators, etc.
2. HISTORY OF ARCHITECTURE.—Junior year, fall term; three hours theory per week. Required: A. E. Prerequisite: Ancient and Medieval History.

Egyptian, Greek, Roman and other important historical styles of architecture; elementary forms of design and systems of construction. Typical examples of each style are studied in detail.

3. **WORKING DRAWINGS.**—Junior year, fall term; six hours practicum per week. Required: A. E.

Plans from offices of the best architects in the country are studied in detail, and practical application made of the principles and methods of drafting derived from these drawings and from books and plates in the architectural library.

4. **LETTERING.**—Junior year, fall term; two hours practicum per week. Required: C. E., A. E.

Principles and practice of lettering for working drawings.

5. **PLUMBING AND DRAINAGE.**—Junior year, winter term; two hours theory per week. Required: A. E.

Water supply to buildings and the removal of soil and waste; filters; traps; plumbing fixtures; ventilation, etc.

6. **DETAILS OF BUILDING CONSTRUCTION.**—Junior year, winter term; four hours practicum per week. Required: A. E.

A continuation of the study of working drawings from architect's plans, books and plates in the architectural library and other sources. Preparation of scale and full size details of windows, doors, cornices, stairs, interior finish, etc.

7. **ORDERS OF ARCHITECTURE.**—Junior year, spring term; four hours practicum per week. Required: A. E.

Proportions, development and application to modern use of the orders of Greek and Roman architecture.

8. **SHADES, SHADOWS AND PERSPECTIVE.**—Junior year, spring term; four hours practicum per week. Required: A. E.

Advanced work in architectural perspective drawing, and the delineation of shades and shadows.

9. **PEN AND INK RENDERING.**—Junior year, spring term; four hours practicum per week. Required: A. E.

Methods and practice of pen and ink rendering as applied to architectural drawings.

- 10 *a-b*. **ARCHITECTURAL DESIGN.**—Senior year, fall and winter terms; six hours practicum per week, fall term; ten hours practicum per week, winter term. Required: A. E.

A study of the principles of planning and design. Sketch plans, elevations and sections of stated problems are prepared and followed by working drawings and details. During the winter term particular attention is given to problems involving steel and reinforced concrete fireproof construction.

11. **STEEL CONSTRUCTION.**—Senior year, winter term; three hours theory per week. Required: A. E.

Steel frame construction and its application to modern fireproof buildings; wall and column bearing systems; caisson and pile foundations; grillage, raft and cantilever construction; terra cotta, concrete and other systems of fireproofing; connections and anchorage of terra cotta, brick and stone facing to steel frame.

12. ESTIMATES OF COST.—Senior year, spring term; two hours theory per week. Required: C. E., A. E.

Practical problems in the various methods of estimating quantities and cost of materials; approximate estimates of cubic contents and floor areas, and detailed estimates of all materials and labor.

13. SUPERINTENDENCE.—Senior year, spring term; two hours theory per week. Required: A. E.

The duties and powers of the architect as superintendent. The obstacles with which he has to contend and the best methods of handling them. The importance and necessity of complete and properly prepared plans and specifications to effective superintendence.

- 14 *a-b-c*. SEMINAR.—Senior year, fall, winter and spring terms; one hour theory per week. Required: A. E.

Lectures, selected readings and discussions on matters of value and interest not covered by the regular courses, and on professional ethics and practice.

- 15 *b*. THESIS.—Senior year, spring term; eighteen hours practicum per week. Required: A. E.

The student prepares for his thesis preliminary sketches and complete working plans of a steel or reinforced concrete, fireproof or commercial building, including computations for structural work.

- 16 *a*. HOUSE PLANNING.—Senior year, fall term; two hours theory and four hours practicum per week. Required: Dom. Sci.

A condensed course in building materials and construction, including plumbing, heating and ventilation, is followed by a preparation of sketch plans for a typical residence, and estimates of cost.

- 17 *a-b*. DESCRIPTIVE GEOMETRY AND PERSPECTIVE.—Sophomore year, winter and spring terms; three hours theory and four hours practicum per week, winter term; two hours theory and four hours practicum per week, spring term. Required: Engr. Prerequisite: Math. 2*c*.

Orthographic projection; lines, planes and surfaces; intersections and developments; isometric and oblique projections; elementary shades; shadows and perspective drawing.

18. ORNAMENT.—Senior year, fall term; two hours practicum per week. Required: A. E.

History and development of ornament, and its application to architectural design.

DOMESTIC SCIENCE AND ARTS DIVISION

L. L. LEWIS, *Acting Dean*

The course in Domestic Science and Arts for 1913-14 has been revised, and is more comprehensive and extensive than heretofore.

The Departments of the Domestic Science and Arts Division occupy nearly all the first floor of the Woman's Building. The space at command comprises a laboratory, kitchen, practice dining room, demonstration lecture and recitation room, two large sewing rooms and a studio, besides offices and two locker rooms.

The courses offered in Domestic Science and Arts are as follows:

1. A regular four years' course, leading to the degree of Bachelor of Science.
2. A course in connection with the Teachers' Normal Division. This course is intended chiefly for those needing general knowledge of Domestic Science and Arts for use in connection with the teaching of common school branches, and occupies one hour of theory and four hours practicum each week during the Sophomore year, with Home Economics.
3. A twenty weeks' course in connection with the Short Course in Agriculture. Simple work is given in sewing and textiles, food preparation and selection, hygiene and sanitation, home nursing, house furnishing, etc. This course is adapted to the needs of those who wish to apply the knowledge gained to problems met in their own homes.
4. Certain elective studies are provided for advanced students working for a degree. Domestic Science, Physiology, Chemistry and Pedagogy are the prerequisites for this work.

The subjects of the Domestic Science and Arts Division are taught by the following Departments:

The Department of Domestic Science.
 The Department of Domestic Arts.
 The Department of Drawing.
 The Department of Zoology and Veterinary Science.
 The Department of Architectural Engineering.
 The Department of Electrical Engineering and Physics.
 The Department of Horticulture and Botany.
 The Department of English.
 The Department of German and Latin.
 The Department of Mathematics and Astronomy.
 The Department of Chemistry, Metallurgy and Mineralogy.
 The Department of Entomology.
 The Department of Pedagogy and History.

Outline of Courses in the Domestic Science and Arts Division, Giving Subjects and Hours

The figure and letter following the Departmental name signify the serial number of the subject and indicate the first (a), second (b), or third (c) term's work in the same subject. The name in parenthesis is the specific name of the subject, and the figures in column at the right of the name indicate the number of hours per week the subject is taught; classroom hours without parenthesis, practicum hours in parenthesis. The practicum period is two hours in length, and is equivalent to one hour classroom work in estimating number of hours per week to be taken.

FRESHMAN YEAR

FALL TERM	WINTER TERM	SPRING TERM
English 1a.....4	English 1b.....4	English 1c.....4
Mathematics 1a.....5	Mathematics 1b.....4	Mathematics 2c.....5
(Algebra)	(Algebra)	(Plane Geometry)
History 1a.....4	History 1b.....4	Physics 1.....4 (2)
(American)	(Government)	(Ele. Physics)
Drawing 1a..... (4)	Mathematics 2d.....4	Botany 1a..... 3 (4)
(Ele. Drawing)	(Plane Geometry)	(Ele. Botany)
Domestic Arts 3a..... (2)	Domestic Arts 3b..... (2)	Domestic Arts 1c..... (4)
(Basketry)	(Basketry)	(Sewing)
Domestic Arts 1a..... (2)	Domestic Arts 1b..... (2)	Drawing 1c..... (2)
(Sewing)	(Sewing)	(Ele. Design)
Dom. Science 5.....2	Pub. Speaking 1b.. (2)	Physical Training
(Social Observances)	(Expression)	
Public Speaking 1a..... (2)	Physical Training	
(Expression)		
Physical Training		

SOPHOMORE YEAR

FALL TERM	WINTER TERM	SPRING TERM
English 2a.....4	English 2b.....4	English 2c.....4
German 1a.....4	German 1b.....4	German 1c.....4
(Beginner's Course)	(Beginner's Course)	(Beginner's Course)
Chemistry 1a.....3 (4)	Chemistry 1b.....3 (4)	Chemistry 1c.....3 (4)
(Inorganic Chem.)	(Inorganic Chem.)	(Inorganic Chem.)
Drawing 2a.....1 (2)	Drawing 2b.....1 (2)	Drawing 2c.....1 (2)
(Composition)	(Color Theory)	(Applied Design)
Zoology 1.....3 (4)	Dom. Science 2a.....1 (4)	Dom. Science 2b.....1 (4)
(General Zoology)	(Food Work)	(Food Work)
Domestic Arts 2a..... (2)	Domestic Arts 2b..... (2)	Domestic Arts 2c..... (2)
(Millinery)	(Millinery)	(Millinery)
Domestic Arts 11a..... (2)	Domestic Arts 11b.. (2)	Domestic Arts 5.....1
(Model Sewing)	(Model Sewing)	(Hist. of Costumes)
Domestic Arts 4a.....1	Domestic Arts 4b.....1	Domestic Arts 4c.....1
(Textiles)	(Textiles)	(Textiles)
Physical Training	Physical Training	Physical Training

JUNIOR YEAR

FALL TERM

English 8a.....5	
(Adv. Composition)	
Chemistry 2.....3 (4)	
(Adv. Inorg. Chem.)	
Physiology 1.....3 (4)	
(Adv. Physiology)	
Domestic Science 6a.....1 (4)	
(Food Work)	
Public Speaking 2..... (2)	
(Adv. Expression)	
Domestic Arts 6..... (2)	
(Drafting)	

WINTER TERM

English 8b.....5	
(Adv. Composition)	
Chemistry 17.....3 (4)	
(Applied Organic Chemistry)	
Bacteriology 4.....2 (4)	
(Household Bacteriology)	
Drawing 3b.....2 (2)	
(Applied Arts)	
Dom. Science 6b.....1 (2)	
(Food Work)	
Domestic Arts 7..... (2)	
(Cutting & Fitting)	

SPRING TERM

English 8c.....5	
(Adv. Composition)	
Chemistry 16.....3 (4)	
(Chem. of Foods & Sanitation)	
Bacteriology 5.....2 (4)	
(Household Bacteriology)	
Drawing 3c.....1 (2)	
(Applied Arts)	
Dom. Science 6c.....1 (2)	
(Food Work)	
Domestic Arts 8..... (4)	
(Dressmaking)	
Entomology 2.....1 (2)	
(Household Entom.)	

SENIOR YEAR

FALL TERM

English 5.....5	
(Romantic Move.)	
or	
Pedagogy 4 & 7.....5	
(Theory & Practice & H. S. Teaching)	
Dom. Science 19a.....2	
(Dietetics)	
Dom. Science 12a.....2 (2)	
(Teach. Dom. Sci.)	
Dom. Science 14a.....2 (4)	
(Adv. Cooking)	
Domestic Arts 12a.....1	
(Theory of Sewing)	
Arch. Eng. 16a.....2 (4)	
(House Planning)	
Domestic Arts 13..... (2)	
(Tailoring)	

WINTER TERM

English 6.....5	
(Tennyson)	
or	
Pedagogy 5 & 8.....5	
(Philosophy Edu. School Adm.)	
Dom. Science 19b.....2	
(Dietetics)	
Dom. Science 12b.....2 (2)	
(Teach. Dom. Sci.)	
Dom. Science 14b.....2 (4)	
(Adv. Cooking)	
Domestic Arts 12b.....1	
(Theory of Sewing)	
Dom. Science 20.....2 (4)	
(House Decoration)	
Domestic Arts 9..... (2)	
(Adv. Hand Work)	

SPRING TERM

English 7.....5	
(Carlyle & Ruskin)	
or	
Pedagogy 6 & 9.....5	
(Educa. Psychology School Super.)	
Dom. Science 19c.....2	
(Dietetics)	
Dom. Science 12c.....2 (2)	
(Teach. Dom. Sci.)	
Dom. Science 14c.....2 (4)	
(Adv. Cooking)	
Domestic Arts 12c.....1	
(Theory of Sewing)	
Dom. Science 21.....2 (4)	
(House Furnishing & Management)	
Domestic Arts 14..... (2)	
(Adv. Dressmaking)	
Domestic Arts 10a..... (4)	
(Fine Needlework)	

Department of Domestic Science

JESSAMINE CHAPMAN, *Professor*IVA A. McBRIDE, *Assistant*

Since the Department has been moved to the new laboratories it contains a more extensive and up-to-date equipment. New illustrative material has been added and the new practice dining room is well equipped for work for the coming year.

Special attention will be given to more efficient methods of housekeeping and homemaking.

In the College Library there are many valuable books of reference on Home Economics, Domestic Science and Arts, and allied subjects. The Department of Domestic Science receives regularly a number of the best household magazines. The Government bulletins and other publications of interest are used in the departmental reading room.

The course is planned with special reference to the training

of teachers as well as for the general culture of the homemaker and the housekeeper.

SUBJECTS

- 2 *a-b*. FOOD WORK.—Sophomore year, winter and spring terms; one hour theory and four hours practicum per week. Required: Dom. Sci. & Arts. Elective: Sci. & Lit., Normal. Prerequisites: Physics 1, Bot. 1*a*, Chem. 1*a*. Chem. 1*b* and 1*c* must be taken simultaneously with Dom. Sci. 2*a* and 2*b*.

This subject includes a study of the history and manufacture of foods, processes used in cooking, classification, principles of cookery, chemical composition of foods. The digestibility, nutritive value, economic value, and the uses of food are considered. Lectures, recitations, demonstrations and theme work are included in the theory. The selection, preparation, judging, and the serving of typical foods is a part of the work of each practicum.

5. SOCIAL OBSERVANCES.—Freshman year, fall term; two hours theory per week. Required: Dom. Sci. and Arts. Elective: Sci. & Lit. (Sophomore), Normal (Sophomore).

The lectures and discussions consider the usages of good society, including manners, conversation, forms of address, introductions, entertainments, calls, etc. Lectures, discussions, collateral readings and demonstrations are given.

- 6 *a-b-c*. FOOD WORK.—Junior year, fall, winter and spring terms; fall term, one hour theory and four hours practicum per week; winter and spring terms, one hour theory and two hours practicum per week. Required: Dom. Sci. & Arts. Elective: Sci. & Lit., Normal. Prerequisites: Dom. Sci. 2*a*, 2*b*.

This course comprises more advanced work in the selection, preparation and serving of foods. Special attention is given to economic methods of preparation, to invalid cookery, and to the planning of meals, the setting of the table, and the serving of simple meals. Lectures, recitations and theme work are included in this course.

- 12 *a-b-c*. TEACHING DOMESTIC SCIENCE.—Senior year, fall winter and spring terms; two hours theory and two hours practicum per week. Required: Dom. Sci. & Arts. Elective: Normal.

This course gives practice in the actual teaching of Home Economics. The students take turns, under the direction of the head of the department, in conducting classes in the laboratory or at the high school. The course includes a study of the equipment of domestic science departments, the furnishings and fittings of lecture rooms, store rooms, laboratories, including utensils and all supplies necessary in the teaching of the various subjects of Home Economics.

- 14 *a-b-c*. ADVANCED COOKING.—Senior year, fall, winter and spring terms; two hours theory and four hours practicum per week. Required: Dom. Sci. & Arts. Prerequisites: Dom. Sci. 6a, 6b, 6c.

This course includes, (a) the study of special problems in the selection, preparation and serving of foods; (b) in preparing and delivering addresses, and doing practical work in food preparation before an audience consisting of other members of the class and invited guests; and (c) in individual work preparing and serving economical meals to invited guests and members of the class. Lectures, recitations, themes and collateral readings are required.

- 19 *a-b-c*. DIETETICS.—Senior year, fall, winter and spring terms; two hours theory per week. Required: Dom. Sci. & Arts. Prerequisites: Dom. Sci. 6a, 6b, 6c, Physiology I, Bact. 4, 5.

This course comprises the study of dietary standards, the calculation of food values, the diet for various ages, and the various systems of diet for normal and abnormal conditions. The most important principles of home nursing are included in this course. The use of gram scales and the computing of the caloric value of foods, recipes, and whole meals form a part of the work of the course.

20. HOUSE DECORATION.—Senior year, winter term; two hours theory and four hours practicum per week. Required: Dom. Sci. & Arts. Prerequisite: A. E. 16a.

This course comprises the study of house decoration, the laws of art in color, line, spacing and proportion being applied to the decoration of rooms in houses of various types. The practice work consists of drawing wall spaces of various kinds of rooms, showing color schemes suitable, by the use of water colors or French crayons; in making simple designs for rugs and hangings for the rooms of the house planned and drawn in A. E. 16a, fall term.

21. HOUSE FURNISHING AND HOUSEHOLD MANAGEMENT.—Senior year, spring term; two hours theory and four hours practicum per week. Required: Dom. Sci. & Arts. Prerequisite: A. E. 16a.

This course is a continuation of the course in house decoration. It comprises the study of the history and development of various types of furniture and the selection of modern styles of furniture suitable to the various types of houses. The latter part of the course includes the study of scientific and systematic care and management of the modern home.

Department of Domestic ArtsMARGARET M. EVANS, *Professor*SUSIE CAGE, *Assistant*

This Department occupies the east wing of the first floor of the new Woman's Building, and includes two well equipped sewing rooms, a fitting room, exhibition room, and lockers. The equipment of the classrooms consists of one large cutting table, sewing tables, sixteen sewing machines of different makes, large mirror, dress forms for use in dress fitting, an electric iron for pressing, an electric heating plate for use in millinery class, drafting charts, a loom, and illustrative material, such as cotton, silk and flax fibers, and many others from all over the world; a sequence of the manufacture of needles, shears, sewing cotton, sewing silk, and linen thread for use in the study of textiles.

This Department aims to meet the needs of two classes of students, viz: First, students in the regular courses of the College who desire a knowledge of general principles and facts of household arts and sewing, as a preparation for home life. Second, students who desire to specialize with a view to becoming teachers of domestic arts.

Every effort is made to give each student the opportunity to develop both latent and evident capacities, thus enabling the choice of an occupation that will return to the worker and to society the largest measure of satisfaction and benefit.

In this College emphasis is laid upon the artistic and practical side of technical work; therefore design and utility are made equal to excellence of technique. A regular alternative is maintained in the routine of classes between instruction that insists on mechanical accuracy and instruction that encourages freedom of line, form and color of expression.

The courses in sewing have a two-fold purpose, the first being to present a systematic, well developed course of instruction that shall develop skill on the part of the student. The second purpose is professional, being to give a content from which courses of study may be organized and show the development of the subject matter, its teaching possibilities, methods of presentation and class management. The complete course includes model sewing, plain sewing, dressmaking and art needlework.

SUBJECTS

- 1 *a-b-c*. MODEL SEWING.—Freshman year, fall, winter and spring terms; fall and winter terms, two hours practicum per week; spring term, four hours practicum per week. Required: Dom. Sci. & Arts, Sci. & Lit. (women), Normal (women).

Fall: A course in making models of the stitches to be used in plain sewing and their application to seams, aprons, towels, etc. Winter: The drafting of patterns for simple underwear and making of plain garments in underwear. Spring: Practice in machine sewing, use of attachments and making of either a white petticoat or princess slip and nightgown.

- 2 *a-b-c*. MILLINERY.—Sophomore year, fall, winter and spring terms; two hours practicum per week. Required: Dom. Sci. & Arts.

Fall: Model work of the various finishes for brims, facings, folds, shirrings, lining, etc; drafting of patterns for shapes to be made up in buckram, and covering and trimming of a model winter hat. Winter: Spring millinery, a study of styles, discussion of materials, remodeling of old hats, wire frame making, covering, sewing straw, and finishing spring hats. Spring: Making and trimming of summer hats.

- 3 *a-b*. BASKETRY.—Freshman year, fall and winter terms; two hours practicum per week. Required: Dom. Sci. & Arts.

Fall: Instruction in simple cord and raffia work, including sewed baskets, over soft coil and reed coil. Designs adapted to the form are studied and applied. Winter: Reed baskets are woven, and the course includes other simple problems in basketry which can be applied in grade teaching.

- 4 *a-b-c*. TEXTILES.—Sophomore year, fall, winter and spring terms; one hour theory per week. Required: Dom. Sci. & Arts. Elective: Normal (4*b*).

The purpose of this course is to give a practical understanding of the various animal and vegetable fibers and processes of their preparation for manufacture; their value in the commercial world; their utility and value for textile fabrics. This course leads to training in good judgment and taste in selection of proper and suitable wearing apparel. It includes the study of the art of weaving, development of spinning, and modern processes of manufacturing, its economic value and the effect upon social conditions; also testing of various fabrics with certain chemicals and under microscope.

5. HISTORY OF COSTUME.—Sophomore year, spring term; one hour theory per week. Required: Dom. Sci. & Arts.

This course offers a study of the history of costumes, covering dress of the primitive people and of early medieval and modern ages; of the folk costumes of various countries, including strange customs in which dress forms an important part. It takes up the hygienic side of costume of modern day, pointing out harmful as well as useful features of present styles.

6. **DRAFTING.**—Junior year, fall term; two hours practicum per week. Required: Dom. Sci. & Arts. Elective: Sci. & Lit., Normal.

Drafting flat paper patterns to individual measurements. Charts are the property of the College.

7. **CUTTING AND FITTING.**—Junior year, winter term; two hours practicum per week. Required: Dom. Sci. & Arts. Elective: Sci. & Lit., Normal.

This includes the application of certain of the patterns of the previous term, and the making of a fitted cambric pattern, and making shirtwaist. Tailored waist designed and cut to individual measurements; particular attention is given to sleeve, placket, cuff, collar and finishing.

8. **DRESSMAKING.**—Junior year, spring term; four hours practicum per week. Required: Dom. Sci. & Arts. Elective: Sci. & Lit., Normal.

A tailored skirt is made. Special attention is given to shrinking of material, finishing seams, placket, etc. Summer dresses of batiste, lawn, dimity or other thin materials made in prevailing practical style suitable to the wearer.

9. **ADVANCED HANDWORK.**—Senior year, winter term; two hours practicum per week. Required: Dom. Sci. & Arts.

Art needlework is taught, including simple stitches in embroidery, and its application to doilies, towels, centerpieces and embroidered underwear.

- 10 *a.* **FINE NEEDLEWORK.**—Senior year, spring term; four hours practicum per week. Required: Dom. Sci. & Arts.

Includes the making of fine French lingerie.

- 11 *a-b.* **MODEL SEWING.**—Sophomore year, fall and winter terms; two hours practicum per week. Required: Dom. Sci. & Arts.

Fall: This course is to give the girls who intend teaching sewing a theoretical and practical understanding of the subject, introducing sewing models and methods of teaching. Winter: Includes simple crocheting stitches and their application.

- 12 *a-b-c.* **THEORY OF SEWING.**—Senior year, fall, winter and spring terms; one hour theory per week. Required: Dom. Sci. & Arts.

Fall: Lectures on methods of teaching, and planning lessons, or series of lessons, in Domestic Arts. Winter: Practice teaching. Spring: A continuation of work of previous terms.

13. **TAILORING.**—Senior year, fall term; two hours practicum per week. Required: Dom. Sci. & Arts.

A tailored coat, either long or short, will be made during the term. The purpose of the course is to give a better understanding of processes involved in making a coat, putting in pockets, etc.

14. **ADVANCED DRESSMAKING.**—Senior year, spring term; two hours practicum per week. Required: Dom. Sci. & Arts.

This includes the making of an evening dress. Dress forms will be used so that each girl may do her own fitting, draping, etc.

SCIENCE AND LITERATURE DIVISIONL. L. LEWIS, *Dean*

The subjects of the Science and Literature Division are taught by the following Departments:

- The Department of Zoology and Veterinary Science.
- The Department of Chemistry, Metallurgy and Mineralogy.
- The Department of Entomology.
- The Department of English and Public Speaking.
- The Department of Mathematics and Astronomy.
- The Department of Political Economy and Social Science.
- The Department of German and Latin.
- The Department of Pedagogy and History.
- The Department of Mechanical Engineering.
- The Department of Electrical Engineering and Physics.
- The Department of Civil Engineering.
- The Department of Horticulture and Botany.
- The Department of Domestic Science.
- The Department of Domestic Arts.
- The Department of Agronomy.
- The Department of Animal Husbandry.
- The Department of Music.

THE ELECTIVE SYSTEM

From the tabulated statement which follows, it will be noted that after the Sophomore year much freedom of election is offered. By a wise exercise of this freedom a student can obtain not only a broad general education, but also a large degree of specialization in any of the Departments included.

RELATION TO OTHER DIVISIONS

Besides the instruction given to students taking the Science and Literature course, the instructional force of this Division gives much of the collateral work taken by students in the other Divisions. Conversely, among the courses offered to students of

this Division are many from the various Departments of the other work. Besides its large teaching force, it has the books, maps, instruments, apparatus, specimens, charts and materials needed by its several Departments. For further information concerning gogy or in domestic science and arts. The feature of the work is in accord with recent educational development, and enables the earnest student to prepare himself or herself for the specific work to which opportunity and inclination call.

EQUIPMENT

The Science and Literature Division is well equipped for its work. Besides its large teaching force, it has the books, maps, instruments, apparatus, specimens, charts and materials needed by its several Departments. For further information concerning the equipment and the work offered, see the announcements of the various Departments following the outline of courses.

Outline of Courses in Science and Literature Division, Giving Subjects and Hours

The figure and letter following the Departmental name signify the serial number of the subject and indicate the first (a), second (b), or third (c) term's work in the same subject. The name in parenthesis is the specific name of the subject, and the figures in column at the right of the name indicate the number of hours per week the subject is taught; classroom hours without parenthesis, practicum hours in parenthesis. The practicum period is two hours in length, and is equivalent to one hour classroom work in estimating number of hours per week to be taken. To graduate, a student must earn credits in sixty term-hours in each year. By "term-hour" is meant one hour of recitation or two hours of practicum per week, carried throughout one term. A student who carries more than the required sixty hours of Sophomore or Junior work will be allowed to apply the excess credit to the following year, but the maximum number of hours which may be so applied is five. In each college term a student must take at least eighteen hours and not more than twenty-three hours, unless by special permission. Junior electives are open to Seniors and Senior electives are open to Juniors, upon approval of adviser and head of Department concerned. Military Science and drill are required of all male students in the course.

FRESHMAN YEAR

FALL TERM

English 1a.....	4
Mathematics 1a.....	5
(Algebra)	
Mathematics 2a.....	4
(Plane Geometry)	
History 1a.....	4
(American)	
Animal Husb 1a	
(Men)	(2)
(Stock Judging)	
Drawing 1a.....	(4)
(Ele. Drawing)	
Domestic Arts 1a	
(Women)	(2)
(Sewing)	
Public Speaking 1a....	(2)
(Expression)	
Physical Training	

WINTER TERM

English 1b.....	4
Mathematics 1b.....	4
(Algebra)	
Mathematics 2b.....	5
(Plane Geometry)	
History 1b.....	4
(Government)	
Animal Husb. 1b	
(Men)	(2)
(Stock Judging)	
Mech. Eng. 1a	
(Men)	(4)
(Woodwork)	
Drawing 1b	
(Women)	(4)
(Object Drawing)	
Domestic Arts 1b	
(Women)	(2)
(Sewing)	
Pub. Speaking 1b....	(2)
(Expression)	
Physical Training	

SPRING TERM

English 1c.....	4
Mathematics 2c.....	5
(Solid Geometry)	
Physics 1.....	4 (2)
(Ele. Physics)	
Mathematics 1c.....	3
(Algebra)	
or	
Botany 1a.....	3 (4)
(Ele. Botany)	
Dom. Arts 1c	
(Women)	(4)
(Sewing)	
Pub. Speaking 1c.....	(2)
(Expression)	
Physical Training	

SOPHOMORE YEAR

FALL TERM

English 2a.....	4
Chemistry 1a.....	3 (4)
(Inorganic Chem.)	
German 1a.....	4
(Beginner's Course)	
Zoology 1.....	3 (4)
(Gen. Zoology)	
Physical Training	
(Women)	

WINTER TERM

English 2b.....	4
Chemistry 1b.....	3 (4)
(Inorganic Chem.)	
German 1b.....	4
(Beginner's Course)	
History 2.....	4
(English History)	
Physical Training	
(Women)	

SPRING TERM

English 2c.....	4
Chemistry 1c.....	3 (4)
(Inorganic Chem.)	
German 1c.....	4
(Beginner's Course)	
History 3.....	4
(American History)	
Physical Training	
(Women)	

SOPHOMORE ELECTIVES

FALL TERM

Mathematics 3.....	5
(Trigonometry)	
History 1c.....	4
(Modern History)	
Music	2
Latin a.....	5
(Beginner's Course)	
Botany 1b.....	2 (4)
(Ele. Botany)	
Dom. Science 5.....	2
(Social Observances)	

WINTER TERM

Mathematics 4a.....	3
(Analytics)	
Agronomy 1a.....	5
(Geology)	
Music	2
Latin b.....	5
(Beginners' Course)	
Zoology 5.....	3 (4)
(Comp. Anatomy)	
Dom. Science 2a....	1 (4)
(Food Work)	

SPRING TERM

Mathematics 4b.....	3
(Analytics)	
Mathematics 5.....	4
(Astronomy)	
Music	2
Latin c.....	5
(Beginners' Course)	
Zoology 6.....	3 (4)
(Syst. Zoology)	
Dom. Science 2b....	1 (4)
(Food Work)	
Drawing 5.....	2
(Teach. of Drawing)	

JUNIOR YEAR

FALL TERM	
English 9a.....	5
(Eng. Literature)	
or	
English 8a.....	5
(Adv. Composition)	
or	
German 2a.....	5
(Adv. Reading)	

WINTER TERM	
English 9b.....	5
(Eng. Literature)	
or	
English 8b.....	5
(Adv. Composition)	
or	
German 2b.....	5
(Adv. Reading)	

SPRING TERM	
Zoology 3.....	2 (4)
(Gen. Biology)	
English 9c.....	5
(Eng. Literature)	
or	
English 8c.....	5
(Adv. Composition)	
or	
German 2c.....	5
(Adv. Reading)	

(Students will be permitted to take only one Course in English, but are required to take either English or German.)

JUNIOR ELECTIVES

(One Science subject must be elected fall and winter terms.)

FALL TERM	
Botany 2.....	3 (4)
(Plant Physiology)	
Chemistry 2.....	3 (4)
(Adv. Inorg. Chem.)	
Physics 4.....	3 (2)
(Heat & Mechanics)	
Physiology 1.....	3 (4)
(Adv. Physiology)	
Dom. Science 6a.....	1 (4)
(Food Work)	
Domestic Arts 6.....	(2)
(Drafting)	
Latin 1a.....	5
(Caesar)	
Social Science 2.....	4
(Prin. of Polit. Economy)	
Mathematics 6a.....	4
(Calculus)	
German 2a.....	5
(Adv. Reading)	
Pedagogy 1.....	5
(Psychology)	
Pub. Speaking 2.....	(2)
(Adv. Expression)	
English 9a.....	5
(Eng. Literature)	
English 8a.....	5
(Adv. Composition)	
Music	2

WINTER TERM	
Botany 3.....	2 (4)
(Plant Physiology)	
Chemistry 17.....	3 (4)
(Applied Organic Chemistry)	
Physics 3.....	3 (2)
(Sound & Light)	
Zoology 2.....	3 (4)
(Histology)	
Dom. Science 6b.....	1 (2)
(Food Work)	
Domestic Arts 7.....	(2)
(Cutting & Fitting)	
Latin 1b.....	5
(Caesar)	
Social Science 3.....	4
(Indus. Combina.)	
Mathematics 6b.....	4
(Calculus)	
German 2b.....	5
(Adv. Reading)	
Pedagogy 2.....	5
(History of Education)	
Pub. Speaking 3.....	1 (2)
(Debating)	
English 9b.....	5
(Eng. Literature)	
English 8b.....	5
(Adv. Composition)	
Music	2

SPRING TERM	
Botany 4.....	2 (4)
(Plant Mycol. & Pathology)	
Chemistry 14.....	3 (4)
(Analytical Chem.)	
Chemistry 16.....	3 (4)
(Chem. of Foods & Sanitation)	
Dom. Science 6c.....	1 (2)
(Food Work)	
Mathematics 5.....	4
(Astronomy)	
Domestic Arts 8.....	(4)
(Dressmaking)	
Latin 1c.....	5
(Caesar)	
Mathematics 6c.....	4
(Calculus)	
German 2c.....	5
(Adv. Reading)	
Pedagogy 3.....	5
(Methods & Manage.)	
Pub. Speaking 4.....	1 (2)
(Public Address)	
English 9c.....	5
(Eng. Literature)	
English 8c.....	5
(Adv. Composition)	
Civil Eng. 1.....	(4)
(Surveying)	
Entomology 2.....	1 (2)
(Household Entom.)	
Entomology 1.....	3 (4)
(Ele. Entomology)	
Physics 2.....	3 (4)
(Electr. & Magn.)	
Music	2

SENIOR ELECTIVES

FALL TERM	
Bacteriology 1.....	3 (4)
(Gen. Bacteriology)	
Social Science 1.....	4
(Com. Usages)	
Botany 6.....	3 (4)
(Spec. Sys. Botany)	
English 5.....	5
(Romantic Move.)	
German 3a.....	5
(Masterpieces)	
Latin 2a.....	5
(Cicero)	
Chemistry 8a.....	3 (4)
(Adv. Org. Chem.)	
Social Science 5.....	4
(Prin. of Sociology)	
Entomology 3.....	3 (4)
(Econ. Entomology)	
Mathematics 7.....	3
(Differential Equa.)	
Pedagogy 7.....	2
(H. S. Teaching)	
Chemistry 15.....	3 (4)
(Physical Chem.)	
Music	2

WINTER TERM	
Bacteriology 2.....	2 (4)
(Agri. Bacteriol.)	
Botany 8.....	3 (4)
(Morphology)	
English 6.....	5
(Tennyson)	
German 3b.....	5
(Masterpieces)	
Latin 2b.....	5
(Cicero)	
Chemistry 8b.....	3 (4)
(Adv. Org. Chem.)	
Social Science 6.....	4
(American Citizenship)	
Zoology 4.....	2 (4)
(Embryology)	
Entomology 4.....	2 (4)
(Biolog. Entom.)	
Pedagogy 8.....	2
(H. S. Adm.)	
Music	2

SPRING TERM	
Bacteriology 3.....	2 (4)
(Tech. Bacteriology)	
Botany 9.....	3 (4)
(Gen. Morphology)	
English 7.....	5
(Carlyle & Ruskin)	
German 3c.....	5
(Masterpieces)	
Latin 2c.....	5
(Virgil)	
Social Science 8.....	4
(Government)	
Entomology 5.....	3 (4)
(Scientific Entom.)	
Horticulture 3.....	2 (2)
(Forestry)	
Pedagogy 9.....	2
(School Supervision)	
Chemistry 5.....	2 (6)
(Industrial Chem.)	
Social Science 7.....	4
(Economic History)	
Music	2
Thesis	

Department of Zoology and Veterinary Medicine

L. L. LEWIS, *Professor*
C. H. McELROY, *Assistant*
L. J. RITTER, *Assistant*
W. P. SHULER, *Assistant*

The Department of Zoology and Veterinary Medicine occupies quarters in the Library Building. The equipment consists of thirty Zeiss and Leitz microscopes with oil immersion lenses, microtomes, dissecting instruments and cameras. The Department is also well supplied with dissectable models of various animals, including an Azoux model of the horse, skeletons and charts for lecture room work. A good working collection of museum specimens is at hand for work in zoology, veterinary medicine, etc. For the work in physiology there are skeletons of the human body, manikins, charts, models, etc. The following work is offered by the Department in the regular College courses:

SUBJECTS**VETERINARY MEDICINE**

1. **ANATOMY.**—Junior year, winter term; three hours theory and four hours practicum per week. Optional (Agron. 5 or Dairy. 2): Agr.

A brief study of the anatomy of the horse. One or more dissections will be made during the term.

2. **ANIMAL PARASITES.**—Senior year, fall term; two hours theory per week. Required: An. Husb. Elective: Agron., Dairy., Hort.

A continuation of the work in zoology, and designed to cover the general subject of controlling and treating parasitic diseases.

3. **MATERIA MEDICA.**—Senior year, winter term; three hours theory per week. Required: An. Husb.

This course is intended to familiarize the student with the most common drugs and their uses. A study of the origin, history and identification of drugs forms a part of the work.

4. **ANIMAL DISEASES.**—Senior year, spring term; two hours theory and two hours practicum per week. Required: An. Husb.

This course follows the work in bacteriology, and special attention is given to infectious and contagious diseases. Special attention is given to the care of the common diseases of farm animals.

PHYSIOLOGY

1. **ADVANCED PHYSIOLOGY.**—Junior year, fall term; three hours theory and four hours practicum per week. Required: Agr., Dom. Sci. & Arts. Elective: Sci. & Lit., Normal. Prerequisites: Sub-Freshman Physiology, Chem. 1a, 1b, 1c.

Particular attention is given to the physiology of nutrition. Laboratory work will include microscopic examinations of body fluids, digestion experiments, etc.

ZOOLOGY

1. **GENERAL ZOOLOGY.**—Sophomore year, fall and winter terms; three hours theory and four hours practicum per week. Required: Sci. & Lit. (fall), Dom. Sci. & Arts (fall), Normal (fall), Agr. (winter).

The instruction given covers the general principles of the science and serves as an introduction to more advanced work in biology.

2. **HISTOLOGY.**—Junior year, winter term; three hours theory and four hours practicum per week. Elective: Sci. & Lit., Normal.

This course includes a study of the tissues of the animal body and their development as related to embryology. Special attention is given to the laboratory course in order to develop necessary technique in staining and mounting tissues for examination.

3. **GENERAL BIOLOGY.**—Junior year, spring term; two hours theory and four hours practicum per week. Required: Sci. & Lit. Elective: Normal. Prerequisite: Zoology 1.

A general study of the problems of organic evolution, heredity, variation, etc. A brief review will be made of the work of the men most prominently connected with the development of biologic sciences.

4. **EMBRYOLOGY.**—Senior year, winter term; two hours theory and four hours practicum per week. Elective: An. Husb., Agron., Dairy., Hort., Sci. & Lit., Normal.

A study of the development of vertebrates, using the chick as laboratory material. The best laboratory technique is followed in making serial sections and in reconstruction work.

5. **COMPARATIVE ANATOMY.**—Sophomore year, winter term; three hours theory and four hours practicum per week. Elective: Sci. & Lit., Normal. Prerequisite: Zoology 1.

The work outlined in Wiedersheim's Comparative Anatomy is used as the basis for the course.

6. **SYSTEMATIC ZOOLOGY.**—Sophomore year, spring term; three hours theory and four hours practicum per week. Elective: Sci. & Lit., Normal. Prerequisite: Zoology 1.

This course follows the more general work in Zoology and will take up the systematic grouping of animals in phyla, classes, etc. Special attention will be given to a study of mammals and birds.

BACTERIOLOGY

1. GENERAL BACTERIOLOGY.—Senior year, fall term; three hours theory and four hours practicum per week. Required: An. Husb., Agron., Dairy., Hort. Elective: Sci. & Lit., Normal.

This course covers the general principles of the science and enables the student to comprehend the importance of bacteria as related to disease, their economy in nature, and relation to the various industries. This work is prerequisite to any work in bacteriology during the winter and spring terms.

2. AGRICULTURAL BACTERIOLOGY.—Senior year, winter term; two hours theory and four hours practicum per week. Required: Agron. Elective: An. Husb., Dairy., Hort., Sci. & Lit., Normal. Prerequisite: Bact. 1.

This work includes studies of the relation of bacteria to agriculture and to many of the industrial processes. A brief study is made of the action and properties of enzymes.

3. TECHNICAL BACTERIOLOGY.—Senior year, spring term; two hours theory and four hours practicum per week. Elective: An. Husb., Agron., Dairy., Hort., Sci. & Lit., Normal. Prerequisite: Bact. 1.

This course is open to students desiring to familiarize themselves with particular problems in the subject. Individual preference of the student will be given consideration in outlining the work.

4. HOUSEHOLD BACTERIOLOGY.—Junior year, winter term; two hours theory and four hours practicum per week. Required: Dom. Sci. & Arts.

Introductory course to Bacteriology, and will include such work as sterilizing, cultivation and physiology of bacteria, yeasts, etc.

5. HOUSEHOLD BACTERIOLOGY.—Junior year, spring term; two hours theory and four hours practicum per week. Required: Dom. Sci. & Arts.

A continuation of the winter term's work. After acquiring sufficient laboratory experience the student will take up work in water and food analysis and studies of some of the common pathogenic bacteria.

Department of Chemistry

HARDEE CHAMBLISS, *Professor*

H. M. POTTER, *Assistant Professor*

RALPH MCBURNEY, *Assistant*

V. T. JACKSON, *Assistant*

E. E. HARNDEN, *Graduate Assistant*

The Chemistry course as a whole is designed to give the student considerable familiarity with carefully selected chemical

facts, and upon these facts as a basis to build up his conceptions of the principles, theories and laws which underlie the chemical science of today. That he may better appreciate the value of the subject to mankind in the past and present, some attention is paid to the history of the subject and to the modern applications in the arts and manufactures. That he may be able to read current chemical literature intelligently and thereby "keep up with the times", the most modern theories are presented in simple form.

Furthermore, as nearly every practical chemist begins as an analyst, and many make analysis their life work, great stress is laid on analytical training. The science of quantitative analysis is taken up along with a thorough drill in the practical side of quantitative work. It is the policy of the Department to have its graduates well drilled in the scientific side of analytical chemistry, both qualitative and quantitative, and the operations involved in the actual analysis of a variety of substances are carefully supervised by the instructors.

This Department is located in the Chemistry Building, which consists of two stories, basement and attic. One of the large, bright rooms on the first floor is fitted up for lectures and recitations. There is a lecture table conveniently equipped and arranged for demonstration and observation. The supply of apparatus and chemicals is quite extensive, and the student's interest in the subject is first aroused, then encouraged and stimulated. The lecture room has a seating capacity of over one hundred. The remainder of the first floor is taken up with laboratories and balance rooms for quantitative work.

On the second floor there are three laboratories for introductory work (Course I *a-b-c*). Each of these will accommodate twenty-four students at a time, and a central storeroom opens into all three. During the laboratory period there is an instructor in each laboratory and an advanced student in the storeroom. This arrangement has proved very efficient for laboratory instruction. All desks are so equipped with bottles or reagents and with apparatus as to minimize the loss of time incident to a student leaving his desk for these articles; and even in the case of more expensive instruments, materials and models for advanced students, every effort is made to keep on hand a supply that will meet

all reasonable demands and prevent serious loss of time and enthusiasm on the part of the student.

In the attic there are the general storerooms for apparatus and chemicals. These communicate with and supply the special storerooms and laboratories below by means of an elevator.

The building is heated by steam, and the gas for light and experimental use comes from a Tirrill equalizing gas machine in the basement. The basement of the building contains a storeroom, a classroom and one large laboratory.

In general it may be said that it is the policy of the Department to maintain at all times those conditions which promote orderly and serious work, and which cultivate a pleasurable interest in scientific experimentation.

The courses offered by the Department may be divided into four classes:

1. The General Elementary Course taken by all Sophomores.
2. The Second-Year Chemistry required of students of Agriculture in the Junior year.
3. The Second-Year Chemistry required of students of Domestic Science and Arts in the Junior year.
4. Courses for those who elect Chemistry during the Junior and Senior years with a view to becoming analysts, research assistants, Government assistants or teachers of Chemistry.

SUBJECTS

1 *a-b-c.* ELEMENTARY INORGANIC CHEMISTRY. — Sophomore year, fall, winter and spring terms; three hours theory and four hours practicum per week. Required: Agr., Engr. (1*a*, 1*b*), Dom. Sci. & Arts, Sci. & Lit., Normal. Prerequisites: Arithmetic, Sub-Freshman Algebra, Algebra 1*a*, 1*b*, 1*c*, Physics 1.

This is the beginners' course and constitutes the foundation of all subsequent work in chemistry. It is designed to cultivate the student's powers of manipulation, observation and logical reasoning. The established facts of chemical science and their relation to the more important chemical industries and to everyday life, and the relation between these facts and the laws and theories of modern chemistry are presented in simple form.

2. **ADVANCED INORGANIC CHEMISTRY.**—Junior year, fall term; three hours theory and four hours practicum per week. Required: Agr., Dom. Sci. Elective: Sci. & Lit., Normal. Prerequisites: Chem. 1a, 1b, 1c.

The object of this course is to broaden and deepen the foundation laid in the Sophomore course (1 a-b-c). All of the fundamental facts, principles, laws and theories are reviewed and amplified. Chemical arithmetic and structural formulae are taken up, the former as a drill in principles and the latter as a preparation for the study of organic chemistry. In the laboratory a systematic course in qualitative analysis is given.

5. **INDUSTRIAL CHEMISTRY.**—Senior year, spring term; two hours theory and six hours practicum per week. A choice between this course and Chemistry 12 is allowed. Both cannot be elected by the same student. Elective: Sci. & Lit., Normal. Prerequisites: Chem. 1a, 1b, 1c, 2, 17, 8a, 8b, 14 or 16.

The purpose of this course is to give in some detail the description of a few of the more important processes for manufacturing inorganic chemical products. Some familiarity with patent literature in general will be features of this course. The laboratory work accompanying will consist chiefly of advanced quantitative analysis.

- 8 a-b. **ORGANIC CHEMISTRY.**—Senior year, fall and winter terms; three hours theory and four hours practicum per week. Elective: Sci. & Lit., Normal. Prerequisites: Chem. 1a, 1b, 1c, 2, 14 or 16, 17.

The oxygen, sulphur, nitrogen, phosphorus and other derivatives of aliphatic and carbocyclic hydrocarbons are studied as fully as the time permits. The laboratory work consists of quantitative analysis.

10. **AGRICULTURAL CHEMISTRY.**—Junior year, spring term; five hours theory per week. Required: Agr. Prerequisite: Chem. 1a, 1b, 1c, 2, 17.

A study of the chemical side of soils and of the atmosphere in their relation to plant life. Special attention is paid to fertilizers and their relation to different kinds of soils and to different varieties of crops.

12. **THESIS.**—Senior year, spring term; one hour theory and eight hours practicum per week. A choice between this course and Chem. 5 is allowed. Elective only upon written application, approved by the head of the Department. Prerequisites: All preceding elective courses in the Department.

In the Science and Literature Division thesis is not required for graduation, but is elective. In this Department, which belongs to that Division, it is elective under certain conditions, making it a reward for good scholarship. It is believed that a poor student or

even a mediocre one can employ his time to better advantage by electing some other course than by trying to work out a thesis. For those who are permitted to elect thesis the classroom periods are devoted to the careful consideration of selected topics, such as typical investigations of famous chemists of the past and present. In the laboratory a serious experimental study of some subject of rather general interest is taken up. The work is intended to cultivate the powers of the student; more particularly his self-reliance and his ability to interpret experimental results. Theory reference books: Muir's "History of Chemical Theories and Laws"; "Annual Reports of Progress of Chemistry", published by the London Chemical Society; "Monographs", published by Royal Society of England.

14. ANALYTICAL CHEMISTRY.—Junior year, spring term; three hours theory and four hours practicum per week. Elective: Sci. & Lit., Normal. Prerequisites: Chem. 1a, 1b, 1c, 2, 17.

A careful consideration of the scientific foundations which underlie analytical chemistry, both qualitative and quantitative, is essential to proper training in these branches. This course is designed to give this training, and the application of the principles taught in this course is insisted upon in all the analytical work which follows. The laboratory work is elementary quantitative analysis.

15. PHYSICAL CHEMISTRY.—Senior year, fall term; three hours theory and four hours practicum per week. Elective: Sci. & Lit., Normal. Prerequisites: Chem. 1a, 1b, 1c, 2, 14 or 16, 17.

In this course the object is to give the student a working knowledge of that field of chemistry which is so modern and which is being so rapidly developed. The application of the principles of physical chemistry to the facts of inorganic and organic chemistry are dwelt upon in some detail. The laboratory work will be quantitative analysis.

16. CHEMISTRY OF NUTRITION AND SANITATION.—Junior year, spring term; three hours theory and four hours practicum per week. Required: Dom. Sci. & Arts. Elective: Sci. & Lit. Prerequisites: Chem. 1a, 1b, 1c, 2, 17.

The chemical nature of foods—their nutritive and calorific values—are taken up, and some of the transformations which they undergo in the alimentary canal are discussed. Dietary calculations also constitute a part of the course. The laboratory work is along the same general lines.

17. APPLIED CHEMISTRY (Introductory).—Junior year, winter term; three hours theory and four hours practicum per week. Required: Agr., Dom. Sci. & Arts. Elective: Sci. & Lit., Normal. Prerequisites: Chem. 1a, 1b, 1c, 2.

A brief introduction to the study of organic chemistry, together with lectures on application of organic chemistry to the feeding of man and of animals. In this course the principal homologous

series of hydrocarbons, alcohols, aldehydes, etc., are taken up. It is intended to give the student well defined ideas concerning the characteristics of carbon which distinguish it from other elements, and to emphasize those nitrogen derivatives of the hydrocarbons which play an important part in the economy of nature—i. e., in fertilizers, foods, etc. The laboratory work will consist of experimental study of the preparation and properties of some typical organic compounds.

Department of Entomology

C. E. SANBORN, *Professor*

E. I. LICHTI, *Assistant*

RAY PAINTER, *Graduate Assistant*

This Department is well equipped with all necessary apparatus for carrying on investigation or research in the theory and practice of insect control.

The museum contains a systematic collection of the common injurious and beneficial insects of Oklahoma. The life history of these is arranged in such a manner as to present the student with a concrete view of the various stages of their development. The collection is being constantly increased, not only by the men in charge of the Department, but also by students who take work in the Department.

All up-to-date types of spraying machinery which are used for combating insects and diseases of plants in general are owned by the Department. In the practice work of spraying plants and trees, the students are not only taught how to use the machines, but in addition thereto are taught how to prepare the spray fluids which are used for controlling various diseases and insects.

An apiary is also owned by the Department, and in some of the regular courses of study, instruction in bee culture is given. This instruction is of course primary, and the practice consists largely of acquainting the student with the apparatus used in bee culture, as well as the actual use of the same.

In studying the life history of insects, students are supplied with all necessary material, such as cages and other apparatus necessary for making a full and complete investigation of any important topic in this Department.

SUBJECTS

- I. ELEMENTARY ENTOMOLOGY.—Junior year, spring term; three hours theory and four hours practicum per week. Required: Agr. Elective: Sci. & Lit., Normal.

Lectures and recitations on insects in general constitute the theory. A textbook is used as a guide in theory. The student becomes acquainted with the different groups of insects, and the anatomy by studying particular types during the practicum.

2. HOUSEHOLD ENTOMOLOGY.—Junior year, spring term; one hour theory and two hours practicum per week. Required: Dom. Sci. & Arts. Elective: Sci. & Lit., Normal.

This work consists of a practical study of the insects of the household and practical remedies for their control. Collections of the insects are made, and practical demonstrations in how to apply remedies are given. Thus the student becomes acquainted with the insects and also the practical application of remedies for their control.

3. ECONOMIC ENTOMOLOGY.—Senior year, fall term; three hours theory and four hours practicum per week. Required: Agron. Elective: Sci. & Lit., Normal.

This term's work is devoted to a study of our economic insects; their life histories, habits, natural enemies, and means of combating them. Field work and observations make the student acquainted with the insects, and enable him to recognize the best time and means of combating. Laboratory work is of a nature to acquaint him with the remedies and how applied.

4. THE BIOLOGICAL ASPECTS OF ENTOMOLOGY.—Senior year, winter term; two hours theory and four hours practicum per week. Elective: An. Husb., Agron., Dairy., Hort., Sci. & Lit., Normal.

This work consists of a systematic study of the biological aspects of insects. A careful study is made of anatomy and physiology of insects; their adaptations to surroundings and the relations which they bear to man. The time devoted to laboratory work is taken up in a study of the external and internal structures, the physiology of metamorphosis, and the classification of some of our economic insects.

5. SCIENTIFIC ENTOMOLOGY.—Senior year, spring term; three hours theory and four hours practicum per week. Elective: An. Husb., Agron., Dairy., Hort., Sci. & Lit., Normal.

This term is devoted to the collection and classification of Oklahoma insects and a scientific study and grouping of them.

6. HORTICULTURAL ENTOMOLOGY.—Senior year, fall term; three hours theory and two hours practicum per week. Elective: An. Husb., Agron., Dairy., Hort.

This course will portray the life histories of the fruit and shade tree insect pests in such a manner that the student will become proficient in recognizing them. The practicum enables the student to become proficient in controlling the various forms in the most practical way.

Department of English and Public Speaking

E. R. BARRETT, *Professor*
H. G. SELDOMRIDGE, *Instructor*
N. W. ROCKY, *Assistant*
RALPH E. TIEJE, *Assistant*
R. A. SWINK, *Assistant*
HARRY R. O'BRIEN, *Assistant*

A number of improvements have been made recently which enable the Agricultural and Mechanical College to keep pace with the constantly increasing attention that is being paid to English in other institutions. Large, beautiful recitation rooms on the second floor of the new Engineering Building have been given over to the use of the Department of English. The teaching force in the Department has been increased. A large number of books for supplementary reading and reference have been added to the library. A new course in advanced composition is offered for the year 1913-14.

The aim of the Department is two-fold: (1) To create such a love in the student for the best literature that he shall continue to read and enjoy it after his school days are over; (2) to teach the student to express himself clearly and forcibly in writing and speaking.

SUBJECTS

- I *a-b-c*. Freshman year, fall, winter and spring terms; four hours theory per week. Required: Agr., Engr., Sci. & Lit., Dom. Sci. & Arts, Normal. Prerequisite: Sub-Freshman English.

This course comprises, (1) an introduction to literature; (2) a review of English grammar; (3) work in composition. The fall term is devoted primarily to literature. The aim is to acquaint the student as fully as possible with a fairly wide range of literature. A study of some of the more important Grecian myths is taken up as supplementary work. A short theme is required at least once a week throughout the term. During the winter term the study of English grammar is taken up, special stress being placed on syntax. Frequent themes are required. The work of the spring term consists principally of the study and practice of the principles of composition. The text is used merely as a guide. Numerous short themes and an occasional long one are required. Frequent individual conferences between students and teachers are an essential part of the work. Throughout the year students must have access to an unabridged dictionary; they are urged to buy either the International, the New International or the Standard.

- 2 *a-b-c*. Sophomore year, fall, winter and spring terms; four hours theory per week. Required: Agr., Engr., Sci. & Lit., Dom. Sci. & Arts. Prerequisites: Eng. 1*a*, 1*b*, 1*c*.

The work of the Sophomore year comprises, (1) the systematic study and practice of the forms of discourse, and (2) a study of some of the best English and American literature, both prose and poetry. The students in English 2 are grouped in recitation sections corresponding to the course in which they are specializing, all engineering students, for example, being grouped together. This arrangement makes it possible to adapt the instruction to the specific needs of the various groups of students, and the book used as the basis of work in composition is suited to such adaptation; it contains specimens of prose composition of all varieties. Throughout the year students must have access to an unabridged dictionary. The student is given two grades, one representing his work in literature, the other his work in composition. A student who receives either an E or F as his composition grade in the spring term must enter a special class in theme writing in the succeeding fall term. A student who fails in literature, or in both literature and composition, will make up the work in the usual way.

5. THE ROMANTIC MOVEMENT IN ENGLISH POETRY.—Senior year, fall term; five hours theory per week. Elective: Sci. & Lit., Normal. Optional (Pedagogy 4 & 7): Dom. Sci. & Arts. Prerequisites: Eng. 1*a*, 1*b*, 1*c*, 2*a*, 2*b*, 2*c*.

About one-third of the time is devoted to Wordsworth; the remainder to Coleridge, Byron, Shelley and Keats. The course is supplemented by lectures and collateral readings tracing the rise and development of the romantic movement. The work is based upon the complete poems of each of the five poets studied. By clubbing together students have purchased the five volumes at less than 50 cents per volume.

6. THE POETRY OF TENNYSON.—Senior year, winter term; five hours theory per week. Elective: Sci. & Lit., Normal. Optional (Pedagogy 5 & 8): Dom. Sci. & Arts. Prerequisites: Eng. 1*a*, 1*b*, 1*c*, 2*a*, 2*b*, 2*c*.

This course is designed to give students a comparatively thorough knowledge of one of the master poets of the Nineteenth Century, because it is believed that for the great majority of those who earnestly study him, Tennyson will prove the gateway to a lifelong love of all great poetry. The College Library contains a considerable number of critical works purchased for the students of this course.

7. CARLYLE AND RUSKIN.—Senior year, spring term; five hours theory per week. Elective: Sci. & Lit., Normal. Optional (Pedagogy 6 & 9): Dom. Sci. & Arts.

The assignment of work in this course varies from year to year. In the spring of 1914 the following will be studied: Carlyle's *Heroes*, *Hero Worship*, and the *Heroic in History*. Ruskin's *Selected Essays and Letters*.

- 8 *a-b-c*. ADVANCED COMPOSITION.—Junior year, fall, winter and spring terms; five hours theory per week. Required: Dom. Sci. & Arts. Elective: An. Husb., Agron., Dairy., Hort., Sci. & Lit., Normal. Optional (Eng. 9a, 9b, 9c, or German 2a, 2b, 2c): Sci. & Lit. Prerequisites: Eng. 1a, 1b, 1c, 2a, 2b, 2c.

The aim is to make this course intensely practical. The themes that are written by the class are used in the College publications whenever it is possible to do so. This course is co-elective with English 9 a-b-c, and any term of one may be taken instead of the corresponding term of the other. Seniors may elect any term. Fall: The elementary principles of journalism are taken up. Papers of the nature of special articles for popular magazines, agricultural journals and Government bulletins are written. Winter: The winter term is devoted largely to argumentation. The principles of this form of discourse are studied. The composition work will consist of short arguments, editorials, and one or two debates. Spring: A study of the short story and general narrative composition.

- 9 *a-b-c*. ENGLISH LITERATURE.—Junior year, fall, winter and spring terms; five hours theory per week. Elective: Sci. & Lit., Normal. Optional (Eng. 8a, 8b, 8c, or German 2a, 2b, 2c): Sci. & Lit. Prerequisites: Eng. 1a, 1b, 1c, 2a, 2b, 2c.

A general survey—Fall: Chaucer to Milton. Winter: Dryden to Burns. Spring: Wordsworth to Stevenson. This course involves more intensive and extensive work than it is possible for secondary schools to do. The principal study is of the literature itself, but enough attention is given to the lives of the authors and to the times in which they lived to enable the student to appreciate their work. Much reading of books from the library will be required.

PUBLIC SPEAKING

- 1 *a-b-c*. VOCAL EXPRESSION (General Course).—Freshman year, fall, winter and spring terms; two hours practicum per week. Required: Agr., Engr., Dom. Sci. & Arts (1a, 1b), Sci. & Lit., Normal.

The aim of the course is to stimulate thinking, to develop the organic means of revealing thought—the voice and the body—by training them to be more flexible and responsive to the mind.

2. VOCAL EXPRESSION (Advanced Course).—Junior year, fall term; two hours practicum per week. Required: Dom. Sci. & Arts. Elective: An. Husb., Agron., Dairy., Hort., Sci. & Lit., Normal.

The work seeks to develop the proper use of the imagination, control of the emotion, sympathetic identification and an understanding of purposes in the various forms of public address. Special emphasis is laid upon originality of thought and its value in the interpretation of literature. The voice is trained for range, flexibility and tone-color.

3. **DEBATING.**—Junior year, winter term; one hour theory and two hours practicum per week. Elective: An. Husb., Agron., Dairy., Hort., Sci. & Lit., Normal.

A practical course in the preparation and delivery of debates.

4. **PUBLIC ADDRESS.**—Junior year, spring term; one hour theory and two hours practicum per week. Elective: An. Husb., Agron., Dairy., Hort., Sci. & Lit., Normal.

A practical course in the preparation and delivery of speeches of various kinds for various occasions.

Department of Mathematics

CARL GUNDERSON, *Professor*

R. E. HARTSOCK, *Associate Professor*

Z. N. HOLLER, *Assistant*

JOHN H. ANDREWS, *Assistant*

All regular College students are required to take work in mathematics. The amount required is different in the five Divisions of the College.

In all courses algebra and geometry are studied in the Freshman year. The engineers take up more advanced mathematics in their Sophomore and Junior years, and Senior engineers may take differential equations as an optional study.

Students in the Science and Literature, and Normal Divisions may take the higher mathematics as elective work.

A short course in descriptive astronomy is offered in the spring term. This course is an elective in the Division of Science and Literature and the Normal Division.

SUBJECTS

- I a. **ALGEBRA.**—Freshman year, fall term; five hours theory per week. Required: Agr., Engr., Sci. & Lit., Dom. Sci. & Arts, Normal. Prerequisite: Sub-Freshman Algebra.

Fundamental laws and operations; simple equations; factors; powers and roots; quadratic equations; graphs.

- I b. **ALGEBRA.**—Freshman year, winter term; four hours theory per week. Required: Engr., Sci. & Lit., Dom. Sci. & Arts, Normal. Prerequisite: Math. 1a.

Algebraic fractions; ratio; variation; proportion, fractional and negative exponents.

- I c. **ALGEBRA.**—Freshman year, spring term; three hours theory per week. Required: Engr. Optional (Bot. 1a): Sci. & Lit., Normal. Prerequisites: Math. 1a, 1b.

Variables and functions; mathematical induction and binomial theorem; progressions; complex numbers; theory of equations; logarithms; limits; partial fractions; permutations and combinations.

- 2 a. PLANE GEOMETRY.—Freshman year, fall term; four hours theory per week. Required: Engr., Sci. & Lit., Normal. Prerequisites: Fall and winter, Sub-Freshman Algebra.

First six chapters of Stone-Mills' Plane Geometry. Fundamental notions; angles; perpendiculars; parallels; triangles; quadrilaterals; polygons; loci; similar triangles; concurrent lines.

- 2 b. PLANE GEOMETRY.—Freshman year, winter term; five hours theory per week. Required: Engr., Sci. & Lit., Normal. Prerequisite: Math. 2a.

Continuation of 2a. The remaining six chapters. Inequality; circles; metrical relations; areas; constructions; regular polygons.

- 2 c. SOLID GEOMETRY.—Freshman year, spring term; five hours theory per week. Required: Engr., Sci. & Lit., Normal. Prerequisites: Math. 2a, 2b.

The relation of lines and planes in space; areas of surface; volumes of solids; polyhedrons; cylinders; cones; spheres; spherical triangles and polygons.

- 2 d. PLANE GEOMETRY.—Freshman year, winter term; four hours theory per week. Required: Agr., Dom. Sci. & Arts. Prerequisite: Sub-Freshman Algebra.

First four chapters of Stone-Mills' Plane Geometry.

- 2 e. PLANE GEOMETRY.—Freshman year, spring term; five hours theory per week. Required: Agr., Dom. Sci. & Arts. Prerequisite: Math. 2d.

The essentials of the remaining chapters of Stone-Mills' Plane Geometry.

3. TRIGONOMETRY.—Sophomore year, fall term; five hours theory per week. Required: Engr. Elective: Sci. & Lit., Normal. Prerequisites: Math. 1b, 1c, 2c.

The development and use of trigonometric functions; relations between the functions; logarithms; solution of triangles; application of practical problems throughout the course.

- 4 a. ANALYTIC GEOMETRY.—Sophomore year, winter term; three hours theory per week. Required: Engr. Elective: Sci. & Lit., Normal. Prerequisites: Math. 1c, 3.

The reference to points and lines to coordinate axes and the deduction of the equations of straight lines and of the curves of conic sections.

- 4 b. ANALYTIC GEOMETRY.—Sophomore year, spring term; three hours theory per week. Required: Engr. Elective: Sci. & Lit., Normal. Prerequisites: Math. 3, 4a.

The general equation of the second degree; solid analytic geometry.

5. ASTRONOMY.—Sophomore or Junior year, spring term; four hours theory per week. Elective: Sci. & Lit., Normal. Prerequisites: Math. 1a, 2b.

The celestial sphere; reference lines and astronomical measurements; the solar system; laws of motion; evolution; stars; comets; nebulae; structure of the universe.

- 6 a. CALCULUS.—Junior year, fall term; four hours theory per week. Required: M. E., E. E., C. E., A. E. Elective: Sci. & Lit., Normal. Prerequisites: Math. 4a, 4b.

The subject is developed from the method of limits; infinitesimals; rates; maxima and minima; partial differentiation; applications.

- 6 b. CALCULUS.—Junior year, winter term; four hours theory per week. Required: M. E., E. E., C. E., A. E. Elective: Sci. & Lit., Normal. Prerequisites: Math. 4b, 6a.

Continuation of Mathematics 6a and introduction of integral Calculus.

- 6 c. CALCULUS.—Junior year, spring term; four hours theory per week. Required: M. E., E. E., C. E., A. E. Elective: Sci. & Lit., Normal. Prerequisites: Math. 6a, 6b.

Integral calculus with application to problems in areas, volumes, center of gravity and other problems chosen from engineering life; expansion of functions.

7. DIFFERENTIAL EQUATIONS.—Senior year, fall term; three hours theory per week. Elective: Sci. & Lit., Normal. Prerequisites: Math. 6b, 6c.

This is an elective course; it deals with the solution of those differential equations that are most important to the engineer.

Department of German and Latin

GUSTAV F. BROEMEL, *Professor*

ROSS MILLER, *Assistant*

A three years' course is offered in both German and Latin. One year of German is required of Sophomores in the Domestic Science and Arts and Science and Literature Divisions. Sophomores in the Teachers' Normal and Juniors in the Agricultural Divisions may elect it.

Second and third year German and all courses in Latin are elective.

All students who have had one year of German are urged to study it at least a second year.

Applicants for a teacher's life certificate have been required to take two years of either language.

SUBJECTS

GERMAN

- 1 *a-b-c*. BEGINNERS' COURSE.—Sophomore year, fall, winter and spring terms; four hours theory per week. Required: Sci. & Lit., Dom. Sci. & Arts. Elective (Junior and Senior): An. Husb., Agron., Dairy., Hort., Normal (Sophomore).

Mastery of inflections and of the elements of syntax. Reading of easy narrative prose. Written and oral translation from English to German. Conversation. Especial attention is given to acquiring a correct pronunciation. Daily practice throughout the year results, with a majority of students, in an accurate and facile pronunciation.

- 2 *a-b-c*. ADVANCED READING COURSE.—Junior year, fall, winter and spring terms; five hours theory per week. Elective: An. Husb., Agron., Dairy., Hort., Sci. & Lit., Normal. Optional (Eng. 8a, 8b, 8c or Eng. 9a, 9b, 9c): Sci. & Lit.

The reading of prose is continued. Syntax is reviewed and studied more intensively. One hour a week will be given to composition. The spring term is devoted to reading scientific German.

- 3 *a-b-c*. MASTERPIECES GERMAN LITERATURE.—Senior year, fall, winter and spring terms; five hours theory per week. Elective: Sci. & Lit., Normal.

Classic and modern literary German occupy most of the time, but scientific German of difficult character is read in the spring term. Composition is continued.

LATIN

- a-b-c*. BEGINNERS' COURSE.—Sophomore year, fall, winter and spring terms; five hours theory per week. Elective: Sci. & Lit., Normal.

Drill on the essentials of Latin grammar, acquiring of vocabulary, reading stories from Roman history, anecdotes and fables.

- 1 *a-b-c*. CAESAR.—Junior year, fall, winter and spring terms; five hours theory per week. Elective: Sci. & Lit., Normal.

Five books of the Gallic War are read. Methods of translation are carefully taught until the student reaches the point where diligence alone will give mastery. Constant drill in forms, syntax and pronunciation.

- 2 *a-b-c*. CICERO AND VIRGIL.—Senior year, fall, winter and spring terms; five hours theory per week. Elective: Sci. & Lit., Normal.

Six books of Cicero's orations, including the four against Catiline. First book of Virgil and selections from the rest.

Department of Drawing and Art WorkADA HAHN, *Instructor*ELENOR H. BROOKHEART, *Assistant*

The aim of the course in this Department is to give training that is necessary for use in the practicum subjects of the College. In the Freshman year the drawing is so planned as to afford the same work for all students in courses where drawing is taken, giving only the elementary principles and their application in matters of everyday life.

In the Normal Division the course is planned for a further study of the teaching of drawing in the eight grades of the elementary schools. In the Domestic Science and Arts Division a study is made of the principles of space, art and color harmony with regard to their use in interior and exterior decorations of homes and costumes. The object of the work is to develop an appreciation of good form and color, and to enable the student to exercise a more intelligent and sensitive discrimination in their use. Emphasis is laid upon simple, but well chosen and inexpensive decoration.

SUBJECTS

- 1 a. **ELEMENTARY DRAWING.**—Freshman year, fall term; four hours practicum per week. Required: Agr., Engr., Sci. & Lit., Dom. Sci. & Arts. Normal.

An elementary course designed for the development of graphic expression with special reference to the needs of engineers for freehand sketching; agriculturists in the study of plants and animals; domestic science and arts students the study of space-art, and color application for homes and dress; architects in space-art.

- 1 b. **OBJECT DRAWING AND SKETCHING.**—Freshman year, winter term; four hours practicum per week. Required: Engr., Sci. & Lit. (women), Normal (women).

Further study of perspective, principles of representation of light and shadow, drawing from still-life, study of comparative proportions of parts and beauty of form related to common objects of practical use.

- 1 c. **ELEMENTARY DESIGN.**—Freshman year, spring term; two hours practicum per week. Required: Dom. Sci. & Arts, Normal.

Making of designs from spring blossoms and plant forms for motif, and their application to various materials. The principles of order, as expressed by balance, rythm and harmony are considered and worked out.

- 2 a. COMPOSITION.—Sophomore year, fall term; one hour theory and two hours practicum per week. Required: Dom. Sci. & Arts.

Dark and light, with special reference to decorative usages in applied art. The theories of line, dark-and-light, are studied in their various relations of proportion, subordination, rythm and tone values.

- 2 b. COLOR THEORY.—Sophomore year, winter term; one hour theory and two hours practicum per week. Required: Dom. Sci. & Arts.

Continuation of 2a, with a study of special problems in color harmonies; use of the stencil; block painting.

- 2 c. APPLIED DESIGN.—Sophomore year, spring term; one hour theory and two hours practicum per week. Required: Dom. Sci. & Arts.

Theory of design and its application to various materials.

- 3 b-c. APPLIED ARTS.—Junior year, winter and spring terms; two hours theory and two hours practicum per week, winter term; one hour theory and two hours practicum per week, spring term. Required: Dom. Sci. & Arts.

Application of design and color for home art; for furnishings, metal textiles and interiors.

5. TEACHING OF DRAWING.—Sophomore year, spring term; two hours theory per week. Elective: Sci. & Lit., Normal.

This course deals with the teaching of drawing in the eight grades of the elementary schools. Illustrative work forms so large a part of modern educational methods it necessitates good drawing, and this course is planned to meet the needs of grade teachers. The following divisions will be studied: 1. Technique. 2. A pedagogical view of the subject. 3. Selection of materials. 4. The special purpose of teaching of drawing and general methods of presentation.

6. STUDIO WORK.—Hours arranged by the instructor. Elective subject to Faculty approval.

Opportunity is given for leather work, stenciling and block painting, and wood carving, china painting, oil and water color. This work is given only to students upon recommendation of the Department and approval of the Faculty.

- 7 a-b. ARCHITECTURAL WATER COLOR DRAWING.—Senior year, fall and winter terms; four hours practicum per week. Required: A. E.

Theory of colors; method of practice of water color rendering for architectural drawings.

TEACHERS' NORMAL DIVISIONJOHN H. BOWERS, *Dean*

The literary, scientific and industrial work required of the Normal students is done in those Departments of the College having special facilities and equipment for teaching these branches efficiently and with greatest economy to the prospective teacher.

The subjects of the Teachers' Normal Division are taught by the following Departments:

- The Department of Pedagogy and History.
- The Department of Zoology and Veterinary Science.
- The Department of Mechanical Engineering.
- The Department of Electrical Engineering and Physics.
- The Department of Civil Engineering.
- The Department of Horticulture and Botany.
- The Department of Agronomy.
- The Department of Domestic Science.
- The Department of Domestic Arts.
- The Department of Dairying.
- The Department of English and Public Speaking.
- The Department of German and Latin.
- The Department of Animal Husbandry.
- The Department of Music.
- The Department of Mathematics and Astronomy.
- The Department of Chemistry, Metallurgy and Mineralogy.
- The Department of Political Economy and Social Science.
- The Department of Entomology.

B. S. Degree and State Life Certificate

Students who complete the full four years' course in the Teachers' Normal Division receive both the Bachelor of Science degree and a State life certificate, which certificate is accepted in many other States.

Short Courses for Teachers' Certificates

Those who desire to prepare for teaching and do not wish to take the full four years' course can attend the College one or more terms and elect such studies as are necessary to secure a teacher's certificate. When a subject is completed at the College, that credit is accepted instead of examination on that subject for a teacher's certificate. All subjects required for a teacher's certificate are offered sometime during the College year. A number of the subjects required for a teacher's certificate are offered during each term, but not quite all are offered during any one term, except the Summer term. During the Summer term all teachers' certificate subjects are offered.

Special Courses for Rural Teachers

The College offers excellent courses of study for those who are preparing to teach in the rural schools. The College instructors understand and appreciate the needs of country life, and devote their best efforts to the problems of rural welfare.

Outline of Courses in Teachers' Normal Division, Giving Subjects and Hours

The figure and letter following the Departmental name signify the serial number of the subject and indicate the first (a), second (b), or third (c) term's work in the same subject. The name in parenthesis is the specific name of the subject, and the figures in column at the right of the name indicate the number of hours per week the subject is taught; classroom hours without parenthesis, practicum hours in parenthesis. The practicum period is two hours in length, and is equivalent to one hour classroom work in estimating number of hours per week to be taken. To graduate, a student must earn credits in sixty term hours in each year. By "term-hours" is meant one hour of recitation or two hours of practicum per week, carried throughout one term. A student who carries more than the required Sophomore or Junior work will be allowed to apply the excess credit to the following year, but the maximum number of hours which may be so applied is five. In each college term a student must take at least eighteen hours and not more than twenty-four hours, unless by special permission. Junior electives are open to Seniors and Senior electives are open to Juniors, upon approval of adviser and head of Department concerned. Military Science and drill are required of all male students in the course.

FRESHMAN YEAR

FALL TERM	WINTER TERM	SPRING TERM
English 1a.....4	English 1b.....4	English 1c.....4
Mathematics 1a.....5	Mathematics 1b.....4	Mathematics 2c.....5
(Algebra)	(Algebra)	(Solid Geometry)
Mathematics 2a.....4	Mathematics 2b.....5	Physics 1.....4 (2)
(Plane Geometry)	(Plane Geometry)	(Ele. Physics)
History 1a.....4	History 1b.....4	Mathematics 1c.....3
(American)	(Government)	(Algebra)
Animal Husb. 1a	Animal Husb. 1b	or
(Men) (2)	(Men) (2)	Botany 1a.....3 (4)
(Stock Judging)	(Stock Judging)	(Ele. Botany)
Drawing 1a..... (4)	Drawing 1b	Drawing 1c..... (2)
(Ele. Drawing)	(Women) (4)	(Ele. Design)
Domestic Arts 1a	(Object Drawing)	Domestic Arts 1c
(Women) (2)	Domestic Arts 1b	(Women) (4)
(Sewing)	(Women) (2)	(Sewing)
Public Speaking 1a.... (2)	(Sewing)	Pub. Speaking 1c..... (2)
(Expression)	Mech. Eng. 1a	(Expression)
Physical Training	(Men) (4)	Physical Training
	(Woodwork)	
	Pub. Speaking 1b. (2)	
	(Expression)	
	Physical Training	

SOPHOMORE YEAR

FALL TERM	WINTER TERM	SPRING TERM
English 2a.....4	English 2b.....4	English 2c.....4
Chemistry 1a.....3 (4)	Chemistry 1b.....3 (4)	Chemistry 1c.....3 (4)
(Inorganic Chem.)	(Inorganic Chem.)	(Inorganic Chem.)
Zoology 1.....3 (4)	History 2.....4	History 3.....4
(Gen. Zoology)	(English History)	(American History)
Physical Training	Physical Training	Physical Training
(Women)	(Women)	(Women)

SOPHOMORE ELECTIVES

FALL TERM	WINTER TERM	SPRING TERM
German 1a.....4	German 1b.....4	German 1c.....4
(Beginner's Course)	(Beginner's Course)	(Beginner's Course)
Dairying 1.....2 (4)	Mathematics 4a.....3	Mathematics 4b.....3
(Ele. Dairying)	(Analytics)	(Analytics)
Mathematics 3.....5	Agronomy 1a.....5	Mathematics 5.....4
(Trigonometry)	(Geology)	(Astronomy)
History 1c.....4	Music2	Music2
(Modern History)	Latin b.....5	Latin c.....5
Music2	Domestic Arts 4b.....1	Drawing 5.....2
Latin a.....5	(Textiles)	(Teach. of Drawing)
Domestic Science 5.....2	Dom. Science 2a.....1 (4)	Horticulture 2.....4
(Social Observances)	(Food Work)	(Veg. Gardening)
Botany 1b.....2 (4)	Horticulture 1.....3 (2)	Zoology 6.....3 (4)
(Ele. Botany)	(Orchard Fruits)	(Syst. Zoology)
Agronomy a.....3 (4)	Zoology 5.....3 (4)	Dom. Science 2b.....1 (4)
(Agriculture)	(Comp. Anatomy)	(Food Work)
Agronomy 2.....3 (4)		
(Soils)		

FALL TERM	
Pedagogy 1.....	5
(Psychology)	

FALL TERM	
Botany 2.....	3 (4)
(Plant Physiology)	
Chemistry 2.....	3 (4)
(Adv. Inorg. Chem.)	
Physiology 1.....	3 (4)
(Adv. Physiology)	
Dom. Science 6a.....	1 (4)
(Food Work)	
Domestic Arts 6.....	2
(Drafting)	
Latin 1a.....	5
(Caesar)	
Social Science 2.....	4
(Prin. of Pol. Econ.)	
Mathematics 6a.....	4
(Calculus)	
German 2a.....	5
(Adv. Reading)	
Physics 4.....	3 (2)
(Heat & Mechanics)	
Dairying 1.....	2 (4)
(Ele. Dairying)	
Public Speaking 2.....	(2)
(Adv. Expression)	
Music	2
(Public School)	
English 9a.....	5
(Eng. Literature)	
English 8a.....	5
(Adv. Composition)	

FALL TERM	
Pedagogy 4.....	3 (4)
(Theory & Practice)	
Pedagogy 7.....	2
(H. S. Teaching)	

FALL TERM	
Bacteriology 1.....	3 (4)
(Gen. Bacteriology)	
Botany 6.....	3 (4)
(Spec. Sys. Bot.)	
English 5.....	5
(Romantic Move.)	
German 3a.....	5
(Masterpieces)	
Latin 2a.....	5
(Cicero)	
Social Science 1.....	4
(Com. Usages)	
Social Science 5.....	4
(Prin. of Sociology)	
Mathematics 7.....	3
(Differential Equa.)	
Entomology 3.....	3 (4)
(Econ. Entomology)	
Chemistry 8a.....	3 (4)
(Adv. Org. Chem.)	
Chemistry 15.....	3 (4)
(Physical Chem.)	
Public School Music.....	2
Dom. Science 12a.....	2 (2)
(Teach. Dom. Sci.)	

WINTER TERM	
Pedagogy 2.....	5
(Hist. of Educa.)	

JUNIOR ELECTIVES

WINTER TERM	
Botany 3.....	2 (4)
(Plant Physiology)	
Chemistry 17.....	3 (4)
(Applied Organic Chemistry)	
Dom. Science 6b.....	1 (2)
(Food Work)	
Domestic Arts 7.....	(2)
(Cutting & Fitting)	
Latin 1b.....	5
(Caesar)	
Social Science 3.....	4
(Industrial Com.)	
Mathematics 6b.....	4
(Calculus)	
German 2b.....	5
(Adv. Reading)	
Physics 3.....	3 (2)
(Sound & Light)	
Animal Husb. 3a.....	3
(Prin. Breeding)	
Zoology 2.....	3 (4)
(Histology)	
Pub. Speaking 3.....	1 (2)
(Debating)	
Music	2
(Public School)	
English 9b.....	5
(Eng. Literature)	
English 8b.....	5
(Adv. Composition)	

SENIOR YEAR

WINTER TERM	
Pedagogy 5.....	3
(Philosophy of Education)	
Pedagogy 8.....	2
(H. S. Adm.)	

SENIOR ELECTIVES

WINTER TERM	
Bacteriology 2.....	2 (4)
(Agri. Bacteriology)	
Botany 8.....	3 (4)
(Morphology)	
English 6.....	5
(Tennyson)	
German 3b.....	5
(Masterpieces)	
Latin 2b.....	5
(Cicero)	
Social Science 6.....	4
(American Citizenship)	
Zoology 4.....	2 (4)
(Embryology)	
Music	2
Entomology 4.....	2 (4)
(Biolog. Entom.)	
Chemistry 8b.....	3 (4)
(Adv. Org. Chem.)	
Agronomy 8a.....	4 (2)
(Soil Fertility)	
Animal Husb. 7a.....	4 (2)
(Livestock Man.)	
Dom. Science 12b.....	2 (2)
(Teach. Dom. Sci.)	

SPRING TERM	
Pedagogy 3.....	5
(Meth. & Manage.)	

SPRING TERM	
Botany 5.....	1 (6)
(System. Botany)	
Dom. Science 6c.....	1 (2)
(Food Work)	
Domestic Arts 8.....	(4)
(Dressmaking)	
Latin 1c.....	5
(Caesar)	
Mathematics 6c.....	4
(Calculus)	
German 2c.....	5
(Adv. Reading)	
Mathematics 5.....	4
(Astronomy)	
Civil Eng. 1.....	4
(Surveying)	
Zoology 3.....	2 (4)
(Gen. Biology)	
Chemistry 14.....	3 (4)
(Analytical Chem.)	
Pub. Speaking 4.....	1 (2)
(Public Address)	
Music	2
(Public School)	
English 9c.....	5
(Eng. Literature)	
English 8c.....	5
(Adv. Composition)	
Entomology 2.....	1 (2)
(Household Entom.)	
Entomology 1.....	3 (4)
(Ele. Entomology)	
Physics 2.....	3 (4)
(Electr. & Magn.)	

SPRING TERM	
Pedagogy 6.....	3
(Educa. Psychology)	
Pedagogy 9.....	2
(School Supervision)	
History 4.....	3
(Oklahoma History & Government)	

SPRING TERM	
Bacteriology 3.....	2 (4)
(Tech. Bacteriol.)	
Botany 9.....	3 (4)
(Gen. Morphology)	
English 7.....	5
(Carlyle & Ruskin)	
German 3c.....	5
(Masterpieces)	
Latin 2c.....	5
(Virgil)	
Social Science 8.....	4
(Government)	
Music	2
Entomology 5.....	3 (4)
(Scientific Entom.)	
Chemistry 5.....	2 (6)
(Industrial Chem.)	
Horticulture 3.....	2 (2)
(Forestry)	
Horticulture 8.....	2 (2)
(Landscape Gard.)	
Social Science 7.....	4
(Economic History)	
Dom. Science 12c.....	2 (2)
(Teach. Dom. Sci.)	
Thesis	

Department of Pedagogy, History, Political Economy
and Social Science

JOHN H. BOWERS, *Professor*

S. A. MARONEY, *Instructor*

SUBJECTS

PEDAGOGY

1. **PSYCHOLOGY.**—Junior year, fall term; five hours theory per week. Required: Normal. Elective: An. Husb., Agron., Dairy., Hort., Sci. & Lit.

The primary purpose of this course is to teach the conditions, processes and laws of mental development; and to understand the motives and forces that give rise to human conduct. The psychology of childhood and of adolescence is presented in its practical phases for the benefit of teachers. Other topics are: The relation of the body to the mental activity and development, fatigue, temperament, imitation, suggestion, apperception, attention, association of ideas, imagination, memory, emotion, will, thinking, the laws of expression, and the relation of ideals to conduct. Students will prepare for and verify the class discussions by reading from a number of authorities, including the following: James, Dewey, Angell, Baldwin, Titchener, Thorndike, Bowne, Judd, Wundt and Stout.

2. **HISTORY OF EDUCATION.**—Junior year, winter term; five hours theory per week. Required: Normal. Elective: Sci. & Lit.

The purpose of this course is to arrive at correct notions of what ought to be done in the light of what has been done. The diversity of educational ideals in different countries and the best methods for future advancement. The further aim is to create a deep interest in the lives and works of great educators as a source of inspiration and guidance.

3. **METHODS AND MANAGEMENT.**—Junior year, spring term; five hours theory per week. Required: Normal. Elective: Sci. & Lit.

The aim of this course is to present the general methods of learning and of teaching, followed by the special methods of teaching the different school subjects. The further aim is to study the problems of school gradation, classification, organization and government; also that of securing the cooperation of the community, making conditions favorable for intellectual development and promoting the general welfare of the school. Students will prepare for the class discussions by reading assignments from such books as Bagley's *Educative Process*, O'Shea's *Education as Adjustment*, McMurry's *General Method*, *Method of the Recitation*, *Special Method in History*, *Special Method in Geography*, *Special Method in Elementary Sciences*, Mace's *Method in History*, Bagley's *Classroom Management*, White's *School Management*, Spencer's *Education*, Roark's *Method in Education*, and Dutton's *School Management*. Teachers completing this course will receive credit for same on teachers' certificates.

4. THEORY AND PRACTICE OF TEACHING.—Senior year, fall term; three hours theory and four hours practicum per week. Required: Normal. Optional (and Pedagogy 7 with Eng. 5): Dom. Sci. & Arts.

The theoretical part of this course deals with such topics as: The teacher before the class; conducting the recitation; training pupils to study and to think; teaching pupils the art of securing, retaining and expressing useful knowledge; and the various means of developing the several school subjects. As far as possible the practice work of this course is planned to suit the needs and promote the welfare of the individual student-teacher. In theory, the reading is done from such books as McMurry's *How to Study*, Hinsdale's *Art of Study*, Schaffer's *Thinking and Learning to Think*, Arnold's *How to Teach Reading*, White's *Art of Teaching*, Thorndyke's *Principles of Teaching*.

5. PHILOSOPHY OF EDUCATION.—Senior year, winter term; three hours theory per week. Required: Normal. Optional (and Pedagogy 8 with Eng. 6): Dom. Sci. & Arts.

This course deals with such problems as the philosophy of the learning process; educational psychology; the nature of education, its possibilities and its limitations; physical education; religious education; intellectual development; moral education; educational aims and values; education for discipline, for culture and for efficiency; individual and social education. The classroom discussions will be supplemented by readings from such works as Horne's *The Philosophy of Education*, Rosenkranz's *Philosophy of Education*, Grigg's *Moral Education*, Scott's *Social Education*, Davenport's *Education for Efficiency*, O'Shea's *Social Development and Education*, Dutton's *Social Phases of Education*, Hanus' *Educational Aims and Educational Values*, and Butler's *The Meaning of Education*.

6. EDUCATIONAL PSYCHOLOGY.—Senior year, spring term; three hours theory per week. Required: Normal. Optional (and Pedagogy 9 with Eng. 7): Dom. Sci. & Arts.

This course deals with the application of the laws and methods of psychology to the work of teaching. Classroom lectures will be supplemented by assigned readings. Students will offer independent discussions before the class.

7. HIGH SCHOOL TEACHING.—Senior year, fall term; two hours theory per week. Required: Normal. Elective: Sci. & Lit. Optional (and Pedagogy 4 with Eng. 5).

This course is devoted to the best methods of teaching high school subjects. General lectures will be supplemented by assigning to each individual student reading along the lines of his interests and his specialization. Some of the books used are: Smith's *Teaching of Mathematics*; Lloyd and Bigelow's *Teaching of Biology*; Smith and Hall's *Teaching of Physics and Chemistry*; Bourne's *Teaching of History and Civics*; Carpenter, Baker and Scott's *Teaching of English*; Young's *Teaching of Mathematics*.

8. HIGH SCHOOL ADMINISTRATION.—Senior year, winter term; two hours theory per week. Required: Normal. Elect-

ive: An. Husb., Agron., Dairy., Hort., Sci. & Lit. Optional (and Pedagogy 5 with Eng. 6): Dom. Sci. & Arts.

This course will deal with the curriculum, the organization and the management of the high school.

9. SCHOOL SUPERVISION.—Senior year, spring term; two hours theory per week. Required: Normal. Elective: An. Husb., Agron., Dairy., Hort., Sci. & Lit. Optional (and Pedagogy 6 with Eng. 7): Dom. Sci. & Arts.

The work in this course is devoted to the practical problems of public school organization and administration. Some of the topics are: The course of study, teachers' meetings, securing harmony and cooperation, the relation of the several school factors—directors, principals, teachers and students, school buildings, equipment, and general educational interests. The books used are: Chancellor's *Our Schools, Their Administration and Supervision*; Roark's *Economy in Education*; Gilbert's *The School and Its Life*; Shaw's *School Hygiene*; Burrage and Bailey's *School Sanitation and Decoration*. Whenever there is a call for work in rural school supervision, such work will be offered.

HISTORY

The study of history from the standpoint of general culture as well as that of specific educational value is becoming increasingly appreciated. The aim of this Department is to give, in so far as the limited time apportioned to it will permit, a general view of the social, economic and political development to train the student toward original thinking, and to fit him for intelligently assuming the duties of citizenship.

The College library contains many valuable reference works. The textbook in each course is the basis of the course, and some library reference work will be required. Lectures and student reports will form part of the work.

- 1 a. AMERICAN HISTORY.—Freshman year, fall term; four hours theory per week. Required: Agr., Engr., Sci. & Lit., Dom. Sci. & Arts, Normal.

A brief review of the colonial period. A study of the formation and development of the nation. A review of political parties and national problems. The aim will be to understand the life, the progress and the development of the American people.

- 1 b. GOVERNMENT.—Freshman year, winter term; four hours theory per week. Required: Agr., Engr., Sci. & Lit., Dom. Sci. & Arts, Normal.

The aim is to learn how we are governed. The facts concerning the local, state and national governments will be reviewed with some attention to the problems involved.

- 1 c. MODERN HISTORY.—Sophomore year, fall term; four hours theory per week. Elective: Sci. & Lit., Normal.

An outline study of the great series of revolutions, inventions, discoveries and artistic achievements since the Renaissance, that have brought into being the modern nations of Europe; with a consideration of their present national problems and their probable future.

2. ENGLISH HISTORY.—Sophomore year, winter term; four hours theory per week. Required: Sci. & Lit., Normal.

A brief survey of the rise and development of the English nation, with particular attention to the growth of the free, Anglo-Saxon forms of government, and modern democracy, and especially to the influence of the Industrial Revolution on modern life.

3. AMERICAN HISTORY.—Sophomore year, spring term; four hours theory per week. Required: Sci. & Lit., Normal.

With a brief survey of our colonial history and early struggles for independence, the course takes up a more detailed study of our late constitutional, social and political development; the growth of democracy, the struggle for the Union, the rise of the corporations, and the problems of civic justice and social welfare today.

4. HISTORY AND CONSTITUTION OF OKLAHOMA.—Senior year, spring term; three hours theory per week. Required: Normal.

A history of the political, industrial and educational upbuilding of the Commonwealth of Oklahoma, suitable for properly informing the citizens for intelligent discharge of important civil duties, and for equipping the teacher to handle the subjects successfully in the public schools.

POLITICAL ECONOMY AND SOCIAL SCIENCE

Our social relationships have been recently multiplied beyond our power of adequately understanding or controlling them. Vast industrial organizations have sprung up to control trade and commerce and shape thought itself; our standards of thought and habits of life have undergone an immense transformation in the last half century. These conditions have raised an urgent public demand for a more thorough study of the social sciences, of economics, government and sociology. Both inside and outside of our colleges they are becoming increasingly important. Economics deals with the fundamental laws and facts of the business world; government is concerned with the principles of organizations by which we strive to control the great social forces and institutions of society in the interest of justice; and sociology endeavors to point out the fundamental principles of all association and social development, whereby we may hope to attain a happier

social order and freer and nobler individual life. It is the aim of this Department so to train the student through accurate observation, and sound and generous reasoning, in these social sciences, that he may go out from this institution to "live above the fog in public duty and in private thinking".

The College library contains many excellent books and periodicals. The textbook in each course is simply the basis for the term's work and will be supplemented by lectures, student reports and library reading.

1. **COMMERCIAL USAGES.**—Senior year, fall term; four hours theory per week. Required: M. E., E. E., C. E., A. E. Elective: Sci. & Lit., Normal.

This course includes commercial law, business methods and business organization and management. It includes the study of contracts, agency, sales, negotiable paper, bailments, common carriers, real property, deeds, mortgages, insurance and other phases of the laws of business. Engineering students devote some time to engineering contracts and the business methods of engineers.

2. **PRINCIPLES OF POLITICAL ECONOMY.**—Junior year, fall term; four hours theory per week. Elective: An. Husb., Agron., Dairy., Hort., Sci. & Lit., Normal.

The subject covers the fundamental laws of production, distribution, exchange, and consumption of wealth; the development of capital, growth of monopoly, problems of the tariff, money, credit, banking, public finance, industrial progress, capital and labor, and economic welfare.

3. **INDUSTRIAL COMBINATIONS.**—Junior year, winter term; four hours theory per week. Elective: Sci. & Lit., Normal.

The subject takes up the conditions of the industrial revolution that have brought about our present gigantic business organizations, analyzes the methods they employ and their influence on our national life, and attempts to formulate the best means of controlling them in the interest of justice and public welfare.

5. **PRINCIPLES OF SOCIOLOGY.**—Senior year, fall term; four hours theory per week. Elective: Sci. & Lit., Normal.

With a preliminary survey of the conditions of social life and the principles of social psychology and social organization, the course traces the development of the great human institutions of the family, the economic classes, the state, church, the school and the higher life; and concludes with special attention to the factors involved in social progress, morality and social welfare.

6. **THE DUTIES OF AMERICAN CITIZENSHIP.**—Senior year, winter term; four hours theory per week. Elective: An. Husb., Agron., Dairy., Hort., Sci. & Lit., Normal.

With a preliminary survey of important social conditions in the United States, the course takes up the most practical methods of social betterment in respect to the family, neglected children, the working men, rural communities, public health, the great cities, the church, the great corporations and the government.

7. ECONOMIC HISTORY OF THE UNITED STATES.—Senior year, spring term; four hours theory per week. Elective: Sci. & Lit., Normal.

This course traces the economic and financial history of the United States to secure the help of historic facts in dealing with present economic problems.

8. GOVERNMENT.—Senior year, spring term; four hours theory per week. Elective: An. Husb., Agron., Dairy., Hort., Sci. & Lit., Normal.

A brief preliminary survey of the forms through which governments have evolved, a discussion of the principles of democracy, of the forms and actual practices of our American national, state and local governments, their constitutional development and their problems.

BUSINESS DIVISIONS. C. BEDINGER, *Principal*L. M. GOODWIN, *Assistant*R. A. PETERMAN, *Assistant*

All the work of the Business Division is closely associated with the high grade of class instruction given in the College Course. Students desiring this course must pass examinations in reading, spelling, penmanship, geography, United States history, grammar and arithmetic.

Applicants may be admitted to the Department without examination on satisfactory records from the eighth grade of city schools or on diplomas from common schools.

All applicants for this course must have attained the age of eighteen years.

Two courses of instruction are offered by the Department, viz: (a) Business; (b) Stenographic.

The subjects of the Business Division are taught by the following Departments:

The Department of Bookkeeping.

The Department of Stenography.

The Department of English.

The Department of Pedagogy and History.

These courses enable many young men and women to become efficient salaried employes by providing instruction in the fundamental subjects of a general education and training them as expert accountants, stenographers and clerks.

The regular courses continue in this Department until the close of the Summer School, making a ten and one-half months' course.

Outline of Courses in the Business Division, Giving Subjects and Hours

The figures in column at the right of name indicate the number of hours per week the subject is taught; classroom hours without parenthesis, practicum hours in parenthesis. The practicum period is two hours in length, and is equivalent to one hour classroom work in estimating number of hours per week to be taken. Physical training is required of all Business Course students.

BUSINESS COURSE

FALL TERM	WINTER TERM	SPRING TERM
Bookkeeping (10)	Bookkeeping (10)	Bookkeeping (10)
Spelling 2	Spelling 2	Spelling 2
Penmanship (3)	Penmanship (3)	Penmanship (3)
English 4	English 4	Rapid Calculation 4
Arithmetic 4	Arithmetic 4	Commercial Law 4
Commercial Law 4	Commercial Law 4	Bus. Correspond. 4
Physical Training	Physical Training	Physical Training

COURSE IN STENOGRAPHY

FALL TERM	WINTER TERM	SPRING TERM
Shorthand Theory 5	Dictation (10)	Office Training 5
or	Shorthand Theory.. 5	or
Office Training 5	or	Shorthand Theory 5
Dictation 5	Office Training 5	Dictation 5
Penmanship (3)	Penmanship (3)	Penmanship (3)
Spelling 2	Spelling 2	Spelling 2
Typewriting (10) or (15)	Typewriting (10) or (15)	Typewriting ..(10) or (15)
English 4	English 4	Bus. Correspond. 4
Physical Training	Physical Training	Physical Training

Business Course

The Business Course embraces bookkeeping, farm and factory accounting, auditing, banking, spelling, penmanship, commercial law, commercial arithmetic, rapid calculation, English and business correspondence. A brief description of the work follows:

SUBJECTS

BOOKKEEPING.—Ten hours practicum per week.

Since the principles of bookkeeping are constant, it is the aim of the Department to so thoroughly familiarize the student with these principles that he can take charge of any set of books and keep them intelligently and accurately. This course runs through three terms.

Introductory work deals with elementary bookkeeping, bringing into use the ordinary books of account. Special emphasis is placed on the journal, daybook, ledger, posting, closing, making financial and business statements, old style balance sheet, and trial balance. Much attention is given to writing the common business forms, such as drafts, leases, notes, checks, bills, telegrams, receipts. Students who have finished this section of the work satisfactorily are well trained bookkeepers, and are qualified to enter an office and do the work in a practical, reliable and systematic manner.

Farm Accounting covers the transactions of a representative farm, through a period of an entire year. The records of the first month, January, give in detail all entries from the original records through the general accounts to the trial balance at the end of the month. For the remaining eleven months, monthly summaries of routine transactions are given which present all data necessary

for the accounting entries of an average farm for this period of time. The student will require from four to six weeks to work this set, and it can be given most advantageously after a preparatory course in general business accounting and practice.

Advanced work requires the student to work out sets in corporation bookkeeping, commission and consignment, wholesale and retail, and manufacturing. In this as well as in the introductory course the work is designed to teach bookkeeping as it is practiced in the best business houses. In this section are illustrated loose leaf consignment sheets, impression sales book, letter copying book; daily abstract sales, charged and cash sales, card ledger; organization and management of corporations, factory costs and accounting kept by the voucher method. A thorough drill is also given in single entry bookkeeping.

Banking.—Part I of this subject deals with: The business of a bank; different kinds of banks; bank officers and clerks; banking customs. Part II is devoted to bank accounting. Here the student performs in turn the work of receiving teller, paying teller, bookkeeper, and that of the other clerks of a bank. Part III contains a clear statement of the following subjects: Clearing house, foreign exchange, letters of credit and travelers' checks.

Actual Business.—Upon completion of the Introductory and Advanced work in bookkeeping and banking the class is resolved into a miniature business world. Each student provides himself with the necessary books and business forms for carrying on an actual business. Each student is supplied with a cash capital sufficient to start into business. He thereupon leases a building, buys, sells, insures, borrows money, keeps a bank account, ships goods by freight, and makes all trades possible that are common to business life. Thus imitating the business world, he puts into practice every principle of bookkeeping heretofore learned. He makes or loses money—either of which he must show on his books—and should contention arise over some dealing, may in mock trial sue or be sued. Students in turn have charge of the bank, wholesale and commission offices.

PENMANSHIP.—Three hours practicum per week.

The object of the work in penmanship is fourfold: First, to secure a good position of hand and body and to secure a free and easy movement; second, to secure a knowledge of the forms of the letters; third, to secure such speed as is consistent with legibility and ease; fourth, the application of writing to other forms—especially business forms and correspondence. Stenographers and bookkeepers are required to take penmanship.

SPELLING.—Two hours theory per week.

All persons taking the Business Course must carry this subject. Thousands of positions are each year either not secured or lost on account of bad spelling. The value of spelling to the stenographer especially is obvious. The same is almost equally true with the bookkeeper. The work in spelling is always written. Students are required to make a grade of 95 per cent on examination in the subject before securing diploma.

COMMERCIAL ARITHMETIC.—Four hours theory per week.

The work covered by this subject is the same as that included in any first class higher arithmetic. More than usual attention is given to the solution of problems, and to the principles of arithmetic as well. **Why** is taught as well as **how**.

RAPID CALCULATION.—Four hours theory per week.

A subject of vital importance to the accountant. The work of the spring term is devoted almost wholly to rapid addition, short cuts in figuring interest and to rapid calculation generally.

COMMERCIAL LAW.—Four hours theory per week.

From a business standpoint, perhaps there is no subject in the course which is worth as much to the student as commercial law. This subject takes up contracts, negotiable paper, partnership, sale of chattels, interest, usury, wills, conveyances of real estate, mortgages, etc. The chief aim of this subject is to inform the student how to keep out of difficulties rather than to enable him to extricate himself after he is once involved.

ENGLISH.—Four hours theory per week.

The work is in general divided into three parts. Review of grammar and a thorough study of punctuation, a study of good English based upon Marshall's Business English, and a course in business letter writing. Throughout the course the primary aim is to develop the student's power of expressing himself in speech and in writing.

BUSINESS CORRESPONDENCE.—Four hours theory per week.

One term is devoted to the subject. The student is given a large amount of practice in writing various kinds of letters—letters of inquiry, recommendation, introduction, duns, bills, remittances, circular letters, telegrams, letters of congratulation and condolence, and so on. A careful study is given to the rules of punctuation, meaning of words, variety of expression.

Stenographic Course

Students having a good common school education may finish the course in shorthand in ten and one-half months. The success and proficiency of the student will depend entirely upon his energy, ability and previous training. The student who devotes ten months to this work is better prepared to take up the duties of an office or an amanuensis than the student who devotes only five or six months to it. The general requirements of a competent stenographer do not consist simply of the ability to write shorthand. There must be a knowledge of composition, punctuation, capitalization, grammar, spelling, and the proper arrangement of sentences. For this reason students are required before finishing the course to pass a satisfactory examination upon the subjects named above in addition to the regular examination in shorthand and typewriting.

The course embraces shorthand, typewriting, letterpress copying, writerpress, mimeographing, manifolding, etc., together with spelling, penmanship and English.

The work in stenography is divided into three parts, viz: Theory, education and office practice.

SUBJECTS

SHORTHAND THEORY.—Five hours theory per week.

By shorthand theory is here meant the part of stenography devoted to phonetic spelling, sounds of the letters, principles of the system, word signs, contractions and phrases. All of this work is based on the manual—the Gregg system being the one used.

SHORTHAND DICTATION.—Five hours theory per week.

The work of theory and that of dictation are by no means separate and distinct, since dictation begins early in the theory work, and theory continues through dictation. However, the second division of the work is more largely dictation. During this period, much reading of shorthand is required in order to familiarize the student with forms and to increase the rapidity of reading notes. Before advancing to office practice, the student should develop sufficient ability to write from dictation at an average speed of seventy-five words a minute for a period of half an hour from new matter. He should also be able to write **new matter** at the rate of one hundred words a minute for five minutes.

SHORTHAND OFFICE TRAINING.—Five hours theory per week.

In this Department an entirely new plan is presented for giving the finishing touches to the stenographic course. The course is designed to give the student the knowledge and training that employers designate as “experience”. The work in this Department is founded on the idea that such a course should be an integral part of the regular course of study in the advanced shorthand department. In other words, it should go hand in hand with shorthand and typewriting just as English and spelling do. The student is taught to write a forceful business letter, and to arrange it attractively on the letterhead. He is taught to apply for a position in person, in writing, or through the medium of advertisements.

All of the modern office appliances are dealt with in a thorough and comprehensive manner. The student is taught to file letters in accordance with all the methods used in the modern office. He is given a complete knowledge of telegrams and cablegrams, business and legal papers, contracts, statements, invoices, etc.—not by merely copying printed forms, but by actually doing the work. When the student finishes the work in this Department he is able to do all of the work and office routine required of the stenographer today. He has what the business world demands—efficiency.

TYPEWRITING.—Fifteen hours practicum per week, fall term; ten hours practicum per week, winter and spring terms.

The work in typewriting is necessarily closely connected with that of stenography. While the student is learning shorthand theory, he is also learning the keyboard and the use of the various parts of the typewriter. He begins by writing short words, words are followed by sentences, and these by short letters. As soon as the keyboard is mastered, the matter of transcription is taken up, and from this on, most of the time is devoted to the transcription of matter from dictation. Through the entire course, neatness and accuracy are strongly emphasized. The touch system is used exclusively.

SPELLING AND PENMANSHIP.

Same as in business course.

ENGLISH.

Same as in business course.

OTHER DEPARTMENTS

Sub-Freshman Department

S. A. MARONEY, *Principal*J. H. CALDWELL, *Assistant*R. B. WORTMAN, *Assistant*SAM GASKILL, *Assistant*ADA B. HOUSE, *Assistant*

The Sub-Freshman Department has for its purpose the preparation of students for entrance to the Freshman year and provides some industrial training. For entrance requirements see page 147. Following is an outline of the work given:

Outline of Courses in Sub-Freshman Department, Giving Subjects and Hours

The figures in column at the right of the name, indicate the number of hours per week the subject is taught, classroom hours without parenthesis, practicum hours in parenthesis. The practicum is two hours in length, and is equivalent to one hour classroom work in estimating number of hours per week to be taken. Military Science and Drill are required of all male students in the course.

FALL TERM

English	5
Algebra	5
Ancient History	5
Physiology	4
Penmanship and Spelling	(1)
Elementary Agriculture	(4)
or Drawing	(2)
and Woodwork	(2)
Physical Training	

WINTER TERM

English	5
Algebra	5
Medieval History	5
Arithmetic	4
Penmanship and Spelling	(1)
Etymology	(4)
or Drawing	(2)
and Woodwork	(2)
Physical Training	

SPRING TERM

English	5
Algebra	5
Arithmetic	5
Drawing	(2)
and Woodwork	(2)
Etymology	(4)
or Elementary Agriculture	(4)
Penmanship	(3)
Spelling	(2)
Physical Training	

SUBJECTS

ENGLISH.—Fall, winter and spring terms; five hours theory per week. Required.

The work of the fall term comprises a comprehensive review of English grammar, together with a study of capitalization and punctuation. In the winter term special attention is paid to letter forms and paragraphing. Short themes are required twice a week. About three short English classics are studied. The spring term is devoted to themes and short classics.

ALGEBRA.—Fall, winter and spring terms; five hours theory per week. Required.

The main purpose of the elementary course is the solution of practical problems, rather than the construction of a purely theoretical doctrine as an end in itself. The course includes an intro-

duction to the equation, positive and negative numbers, involved number expression, simultaneous equations, graphic solution of problems and quadratic equations. The standard of thoroughness is high both in algebra and English, but strong students do the work in one year. Some require two years.

PHYSIOLOGY.—Fall term; four hours theory per week. Required.

A thorough elementary course in physiology given in lectures and recitations, supplemented by the use of models, skeleton and charts. Notebooks are kept and notemaking is taught as basis for subsequent science work.

ANCIENT HISTORY.—Fall term; five hours theory per week. Required.

The story of the careers of the great men and women of antiquity and of the rise and fall of the ancient nations and civilizations to 476 A. D., with special emphasis upon the contributions that Greece and Rome have made to modern civilization.

MEDIEVAL HISTORY.—Winter term; five hours theory per week. Required.

The course recounts the beginnings of modern Europe out of the ruins of the ancient world; the development of the great institutions of the church, of feudalism, and of the culture and customs of the Middle Ages to the Renaissance and the discovery of America.

ARITHMETIC.—Winter and spring terms; winter term, four hours theory per week; spring term, five hours theory per week. Required.

This is high school arithmetic. The operations and their applications are mastered. Language and the mental methods of the student are objects also. Coming after one term of algebra, use is made of equations.

ETYMOLOGY.—Winter and spring terms; four hours practicum per week. Optional: Winter term with Drawing and Woodwork; spring term, with Elementary Agriculture.

A study of word building by the use of prefixes, suffixes and roots from the Latin, Greek and Saxon elements of English. Spelling, vocabulary and insight of language are the objects.

DRAWING AND WOODWORK.—Fall, winter and spring terms; four hours practicum per week. Optional: Fall term with Elementary Agriculture; winter term with Etymology. Required: Spring term.

This is freehand from models which are used in the woodwork lesson following. The articles drawn and made are, preferably, some useful household objects, as footstool, shelf bracket, or rollingpin. These lessons alternating thus are closely correlated under the social impulse to make something useful. The drawing and woodwork each are two hours a week and are taught by the Art Department and the Engineering Department of the College. The best results are obtainable under these conditions. Some of

the classes take this through fall and spring, the others through winter and spring terms.

ELEMENTARY AGRICULTURE.—Fall and spring terms; four hours practicum per week. Optional: Fall term with Drawing and Woodwork; spring term with Etymology.

This is a practical course involving elementary physics, chemistry, botany and agriculture. It includes gardening and floriculture, taught by an expert in school gardens. Each student cultivates a small plot for himself. The work is differentiated for boys and girls. About one-third of the class takes it in the fall term and the others in the spring term.

PENMANSHIP AND SPELLING.—Fall, winter and spring terms; fall and winter terms, one hour practicum per week; spring term, arithmetic three hours and spelling two hours practicum per week. Required.

These classes are taught by the expert penmanship teacher in the Business Department.

Department of Music

JOSEPH WATSON, *Director; Instructor in Voice Culture and Public School Music*

MARTHA BELLE REYNOLDS, *Instructor in Piano and Music Theory*

ROBERTA BURGESS, *Assistant in Piano and Music Theory*

THEO. CHR. RUDE, *Instructor in Stringed Instruments*

CLARK M. PORTER, *Instructor in Wind Instruments and Bandmaster*

Music makes broad claims upon the attention of students because of its generally recognized educational value, its cultural influence on the home life of the people, and its professional claims upon the more talented students of music. The instruction in this Department tends toward the musical education and training of a large portion of the student body and free instruction is offered all who desire to select music, provided satisfactory progress is made from month to month in the subject.

Students in the Music Department have access to all classes in the several Departments of the College and to enhance their general culture, are required to take at least two or three studies throughout the school year, other than the work required in the regular music courses.

Accomplished musicians are always in demand as directors, singers, teachers, accompanists and organists for church, concert and public school music work. The Music Department offers earnest students the opportunity to acquire scholarly musicianship.

The following courses enable the student to obtain a comprehensive and practical knowledge of music and to acquire skill and power in interpretation. The time required for completing a course will depend upon previous preparation, the talent, ability and character of the work of each student, but all have the privilege of advancing as rapidly as is consistent with good work.

COURSES IN VOICE CULTURE

ELEMENTARY.—Two lessons per week; vocal sight reading and ear training two hours per week.

Exercises are given for deep breathing and breath control; for purity of production, freedom of action and blending of the registers, correct attack and resonance, pure vowel production and distinct articulation. Choir and chorus practice throughout the year.

INTERMEDIATE.—Two lessons per week in voice, vocal sight reading and ear training two hours per week. Choir and chorus practice throughout the year.

This course gives great attention to tone placing, elements of style and phrasing, staccato, legato and portamento delivery, and exercises tending to the greater flexibility of the voice. Songs of medium grade freely used.

ADVANCED.—Two lessons per week in voice. Two lessons per week in harmony. Choir and chorus practice throughout the year.

This course is devoted to a study of tone color, agility, and all musical ornaments—trill, turn and grupetta, appoggiatura, accicatura, mordente—mezza-di-voce, phrasing and style, and advanced teaching by means of difficult exercises and songs, recitatives and arias from opera and oratoria.

All students in the elementary voice class must attend the sight-reading class unless excused by the Director; the choir and chorus work, with attendance at all recitals, is required of every student. When requested, students in any grade must sing in recital and from memory.

COURSE IN PUBLIC SCHOOL MUSIC

This subject is naturally divided into two parts, and Normal students must prepare themselves to take the course in "Methods" by attendance and proficiency in the Sight Reading classes. To teach school singing one must be able to sing. Prerequisite to Public School Music: After 1913 all students taking Public School Music must hold a full year's grade in Vocal Sight Reading.

COURSE IN PUBLIC SCHOOL MUSIC METHODS

This course is carefully classified for each of the grades in the

public schools, the work being carefully outlined to develop the vocal ability and musical education of the pupils to suit the particular condition of the mind and the voice of the child at the average age in each grade. This outline is somewhat as follows:

Rote songs for little folks. Study of "staff", "notes", "scale". Location of "do", or the keynote, in nine different keys. Sight reading and singing, by syllable and by letter. Much attention given to tone quality and rhythm. Complete analysis of songs—as to key signature, meter signature, tempo signs, marks of expression, the different values of notes used, etc. Written work from oral dictation of tones, syllables, or letters. Written work from dictation of rhythm. Transposition of songs into different keys. Special practice in music class conducting. Singing at sight, rounds, and 2, 3 and 4-part songs. Thorough practice writing and singing major, minor and chromatic scales. "Spelling" and "pronouncing" different triads or chords. A little study of the elements of harmony.

PIANOFORTE COURSE

ELEMENTARY.—Piano—Two lessons per week. Theory of music two lessons per week.

Hand formation, finger exercises, scales, arpeggios and elementary studies, etc. Sonatines and pieces by Kuhlau, Kullak, Clementi, Loeschorn, Reinecke, Schumann, etc.

INTERMEDIATE.—Piano—Two lessons per week. Theory of music two lessons per week.

Technical exercises, scales, arpeggios and octaves. Study of Czerny, Cramer, Clementi, etc. Pieces by Mozart, Haydn, Bach, Schumann, Grieg and other modern composers.

ADVANCED.—Piano—Two lessons per week. Harmony two lessons per week.

Studies by Clementi, Henselt, Moszkowski, Tausig, Chopin, Moscheles, etc. Pieces by Bach, Beethoven, Chopin, Schumann, Liszt, Mozart, Rubinstein and modern composers.

THEORY OF MUSIC

This course comprises studies in the following: Notation, scales, rhythm and accent, musical terminology, intervals, chords and cadences, inversions, natural and artificial groupings and musical ornaments. The advanced theory will deal with harmony, concluding with forms and composition.

VIOLIN COURSE

ELEMENTARY.

Careful attention given to proper position of holding the violin and bow. Elementary violin lessons from modern methods. Scales and chords from first to third position. Studies by Wohlfahrt, Tours, Sevcik, Grun and Scholz, Kayser, etc. Pieces and ensemble. Music theory.

INTERMEDIATE.

Major and minor scales in all positions. Studies by Mazas, Alard, Sevcik and Kreutzer. Pieces by Leonard, Wieniawski, Vieuxtemps, etc. Sonatas by Corelli, Tartini, Handel, Mozart and Beethoven. Easy concertos by modern composers. Sight playing, orchestra, string quartet, and Musical History class.

ADVANCED.

Technique by Sevcik, studies by Kreutzer, Fiorillo, Rode. Concertos by Viotti, Rode, Kreutzer, Bruch, Saint-Saens, etc. Orchestra, ensemble, string quartet class, and Musical History.

VIOLIN, VIOLONCELLO AND CONTRABASS COURSE.

These instruments may be studied by similar grades to those in the violin course, or may be carried only up into the Intermediate Grade. Pupils having reached a fair degree of proficiency on any stringed instruments are required to play in the regular College orchestra.

COURSE IN WIND INSTRUMENTS

Students wishing to take lessons on any wind instrument receive two lessons per week on instruments, two years theory, one year harmony, analysis, counterpoint, orchestration and arranging for military band.

THE BAND.

Instruction will be given by regular College band leader in the use of brass, wood-wind and percussion instruments. To become a member of the College band the student must pass a satisfactory examination before the Director as to knowledge of music and ability to perform on certain instruments before securing recommendation to the President for transfer to the band. The members are required to attend practice three times per week and to perform in public by authority of the President. There is no charge for instruction in the band. The College furnishes instruments, music and music stands to members of band and orchestra. Other students pay one dollar per month in advance for instruments used in practice when furnished by the College. Those desiring private lessons in band instruments will consult with the Director of the Department.

THE ORCHESTRA.

Any College student who plays on any string or wind instrument has the privilege of the orchestra on approval by the Director of Music.

Department of Physical Training for Men

W. E. SCHREIBER, *Director*

E. C. GALLAGHER, *Assistant*

P. J. DAVIS, *Assistant*

Much of the success of a young man or woman in college and in life after graduation depends on good health. The Oklahoma A. and M. College believes in the old adage, "A sound mind in a sound body". The Department of Physical Training aims to

create and maintain a vigorous state of health in every student in the College, and its work is so diversified that it meets the individual needs. It strives to keep the student body in the best possible physical condition, for and during their college course, and to lay the foundation for proper living and care of the body.

The Men's Gymnasium is a large, well lighted room 40x60 feet and contains all of the necessary apparatus for gymnasium work of all kinds. The outfitting is done with the idea of giving the student the advantages to be found in any well regulated college gymnasium. Dumbbells, barbells and Indian clubs will be found there in plenty for mass class drills, and of the heavier apparatus there are the flying and traveling rings, the horse, the horizontal bar, the parallel bars, mats, jumping standards, etc. Boxing gloves and fencing foils are also supplied to those desiring to enter into this special work.

In direct connection with the gymnasium is a large locker room with 400 steel and wooden lockers, benches, and a well equipped shower room with eight showers for hot and cold baths.

Every student in the College is expected to do some work to keep himself in the best possible physical condition.

Students of the Freshman and Sub-Freshman classes, Business and Short Courses are required to do a certain amount of work, for which they receive credit necessary for graduation. There are also classes organized for the other students of the College.

An athletic field for football, baseball and track and field athletics is provided by the College and maintained by the Athletic Association. Students are encouraged to take part in athletic and out-of-door sports. College and class teams are organized and maintained by the Athletic Association, and each team is under the supervision of a trained instructor.

Athletics are a part of the physical training work, but whether a student participates in them or not is optional. No student is allowed to become a member of a team until he has been examined by the Director and proven that he is physically fit. A high standard of scholarship is also required of all members of the College teams.

Each student in the Men's Department must provide himself

with a gymnasium suit so that there can be a complete change of clothing after the physical training work. This suit consists of a sleeveless shirt (white or black), running trousers and soft-soled shoes. These can be procured at a local store at a cost of not to exceed \$3.00.

COURSES FOR MEN

PHYSICAL EXAMINATION.—Preliminary.

A thorough physical examination is required of all entering students. This examination consists of measurements, strength tests, examination of the eyes, ears, nose, throat, lungs, heart and other vital organs, and special stress is laid upon physical deformities and inequalities. These defects are pointed out to the student and exercises to correct them are prescribed. Where necessary special attention and advice are given to the student. An examination is taken at the beginning and at the end of the first year, and at the end of each year after that.

COURSE 1.—Required of the Sub-Freshmen of the College; fall, winter and spring terms. Introductory.

This work consists of mass class drills with dumbbells and barbells, with deep breathing and abdominal mat work. Elementary apparatus work is given on the horse and parallel bars during the fall and winter terms, and is replaced during the spring term by out-of-door track and field athletic work. Tennis and baseball are also substituted. Three hours work a week. Credit given, and required for graduation.

COURSE 2.—Required of the Freshmen of the College; fall, winter and spring terms.

The work of the Freshman classes consists of mass class drills with the dumbbells, barbells and Indian clubs, with elementary apparatus work on the flying rings, horizontal bar, and advanced work on the horse and parallels. In the spring term the out-of-door work of Course 1 replaces the apparatus work. Part of the work of the Freshman year, fall and winter terms, is theoretical. This consists of lectures, recitations and examinations in Personal Hygiene and First Aid to the Injured. Not more than one hour per week will be given to this lecture work. Three hours a week. Credit given, and required for graduation.

COURSE 3.—Required of students of the Short Course in Agriculture; fall and winter terms.

The work of this class consists of mass drills and light elementary apparatus work, and will deal more with the coordinative side of physical training than the developmental. The class is maintained during the fall and winter terms only. Two hours work a week. Credit given, and required for graduation.

COURSE 4.—Required of students of the Business Course; fall, winter and spring terms.

The work of this course is somewhat similar to Course 1, but more advanced. It consists of mass class drills and apparatus work of the heavier type. During the spring term the out-of-door work of Course 1 replaces the indoor work. Three hours a week. Credit given, and required for graduation.

COURSE 5.—Special Classes. Open to all students.

A. Cross-country running. During the fall and spring terms those students desiring to do so may substitute a certain amount of cross-country running for the regular gymnasium work.

B. Wrestling. A class in wrestling, in which all of the holds, breaks and counters are given, is formed. A student may substitute one hour's work a week in wrestling for one hour of his regular class work. Winter term only, one hour per week.

C. Boxing. A class in boxing, in which all of the blows, parries, guards and counters are given, is formed. A student may substitute one hour's work in boxing for one hour of his regular class work. Winter term only, one hour per week.

D. Special Class. A special class is formed for those who, on account of deformities, are unable to take the regular work of the Department. The work of this class is suited to the needs of the individual.

E. Individual corrective work for all students who show in their examination the need of such work. The idea of this work is to correct deformities so that the student may get the maximum value from the regular class work.

F. A class is organized and maintained for Sophomore, Junior and Senior students. Meets twice a week. This work is optional with the students.

NOTE.—A student may take any or all of the special work, but only one hour of substitution will be allowed.

COURSE 6.—Advanced Gymnastic Class. Open to all students.

A special class is formed for students who desire to do advanced work on the horse, parallel bars, horizontal bars, flying rings, mats, tumbling and club swinging, and for the leading of gymnasium squads. This comprises the regular gymnasium team for exhibition purposes. Three hours' work per week.

COURSE 7.—Open only to Seniors.

This course consists of theoretical and practical training in Physical Training and Secondary School athletics. It is intended for those students who expect to teach and who desire to handle such work in high or secondary schools. The work consists of lectures and practical instruction on the athletic field and gymnasium floor. Three hours per week, Senior elective. Fall, winter and spring terms. Given only on recommendation of the Director and by action of the Faculty.

NOTE.—Preceding Courses 1, 3 and 4 a few minutes' talk is given before each lesson on some phase of personal hygiene with the idea of helping the student in his daily life.

ATHLETIC.

Teams are maintained in football, baseball, track and basketball. During the time any student is a member of one of the above teams he will be excused from all gymnasium work and will be given credit therefor.

Department of Physical Training for Women

ANNA MILLER, *Director*IRENE SHALEY, *Assistant*

The new Woman's Gymnasium, located in the Woman's Building, is an unobstructed room 32x63 feet and is equipped with all of the modern gymnasium apparatus. There is a locker and dressingroom in connection, supplied with a large number of steel lockers. There are also shower baths. In the rear of the building are the woman's outdoor tennis courts.

A regular costume is required. In order that these may be uniform in pattern and color, they are ordered by the College. The cost of the suit, including shoes, is about \$6.00.

At the beginning of the fall term each young woman is given a careful examination. Personal history, measurements, deformities, are taken and recorded, with an examination of the vital organs. This examination is repeated during the spring term and comparison made at both examinations with the average. Suggestions and prescriptions suited to the needs of the individual are based upon this examination.

COURSE 1.—Required of members of the Sub-Freshman, Business and Short Course classes. Introductory. Three hours a week.

The work of these classes consists of floor work, emphasizing carriage and coordination of muscles. Movements with apparatus, progressive back and abdominal exercises, Indian clubs, military marching and gymnastic games are given.

COURSE 2.—Required of members of the Freshman class. Advanced. Three hours per week.

This course consists of floor work, apparatus with more advanced work than Course 1; vaulting horse, buck, vaulting box, boom, marching and gymnastic games.

COURSE 3.—Required of members of the Sophomore class.

Indoor and outdoor games, Swedish gymnastics.

COURSE 5.—Corrective Gymnastics.

For those unable to take the work of the regular required courses, this course will be substituted. Hours to suit.

COURSE 6.—Massage, Medical Gymnastics and theory.

Elective for Juniors and Seniors.

COURSE 7.—ATHLETICS.

A. Basketball. Each class has a basketball team, and an inter-class schedule is played.

B. Field hockey and cross-country walking. Open to all classes during the months of October, April and May.

C. Tennis. Tennis is played on the College courts during favorable weather. A tennis club is formed which is under the direction of the Girls' Athletic Association. The club is open to all girls of the College. The dues are 50 cents per year.

Military Department

GEORGE W. EWELL, *Commandant*

First Lieutenant, 3d Infantry

M. McDONALD, *Assistant*

Sergeant Major, Retired, U. S. A.

This institution being one of the beneficiaries of the Act of Congress of 1862, instruction in military tactics is made compulsory.

The Department is in charge of an officer of the United States Army, detailed by the War Department, as professor of Military Science and Tactics.

Military discipline is exercised with firmness, kindness and justice. It tends to cultivate habits of punctuality, alertness and the sense of personal responsibility. It also teaches attention to details, cleanliness of dress and person, a high sense of honor and respect for those in authority.

It helps the student to prepare himself the better for any position in life, because employers like to find men who are imbued with the idea of doing exactly as they are instructed by one authorized to direct them, and who have been trained to exercise quick yet sound judgment in any emergency that arises concerning which they have no definite instructions. These qualities are thoroughly inculcated in any person by a military training such as this College endeavors to give. In addition, the drills give a graceful carriage to the student, assist in the promotion of the health of the individual, and are an added benefit to the gymnasium work of the College:

Former President Taft, on February 25, 1911, following a review of 1,400 cadets at the University of Illinois, wrote as follows to the President of that institution: "We are all in favor of college athletics, but one of the defects of athletics is the tendency to confine work to those who are naturally best adapted to it, while the great student body takes no active part in the games. This is

not true of military training that comes from the organization and maintenance of a school regiment."

The course of instruction is made to conform strictly to the provisions of General Order No. 231, War Department. In compliance with the requirements of that order, the course is both practical and theoretical, and will be applied as follows:

PRACTICAL

1. Infantry Drill Regulations, through the school of the Regiment, in close and extended order.
2. Advance and rear guard, and outposts.
3. Marches, map making, entrenchments.
4. The ceremonies of review, inspection, parades, escort of the colors, guardmounting, etc.
5. Gallery practice.
6. Target practice.
7. Field problems with blank ammunition.

All students, not physically disqualified, are required to drill. During the fall term there will be three drills per week, while the winter and spring terms will be devoted to two drills with one hour's instruction in Military Science in the subjects as set forth in the following table:

THEORETICAL—MILITARY SCIENCE

1. Infantry Drill Regulations, U. S. Army, 1911.
2. Provisional Small Arms Firing Manual, 1909.
3. Field Service Regulations, U. S. Army, 1910.
4. Manual of Guard Duty.
5. Outlines of First Aid to the Injured.
6. Lectures on various military topics.

Satisfactory completion of the prescribed work is required before graduation.

Students entering from other institutions where officers of the army are detailed will be given credit for any theoretical work for which they hold certificates, provided they are not afterward found deficient in the practical work of the subject.

EQUIPMENT

The War Department has supplied the College with 500 U. S. magazine rifles, caliber .30, of the Krag-Jorgensen pattern, and 500 sets of infantry equipment. Swords, target supplies and annual issues of ball, blank and gallery cartridges are also received from the War Department.

Two uniforms will be used. One consists of coat, trousers and hat, and the other of the same hat and trousers, but with a blue chambray shirt instead of the coat. The coat, trousers, hat and two shirts cost \$16.55 for season of 1912-13. With the uniform, black high shoes must be worn at all times. A white military collar is required when the coat is worn. White gloves are required when under arms.

The uniform will give more wear than a civilian suit costing the same amount. It is made of an excellent grade of 16 and 18-ounce Charlottesville woolen goods of gray color. Each suit is tailor made to individual measure, and a correct fit is guaranteed by the contractor and must meet the approval of the Commandant.

ORGANIZATION

All young men are required to enroll in the Military Department if physically able to take the work.

The Corps of Cadets has been organized into a regiment consisting of a band and two battalions of four companies each. Officers whose service has been satisfactory are given a genuine parchment commission on their graduation.

Upon the graduation of each class, the names of such students as have shown special aptitude for military service are reported to the Adjutant General of the army and to the Adjutant General of their State.

Roster of the Corps of Cadets*Commandant of Cadets*

GEORGE W. EWELL

First Lieutenant Third Infantry

Field and Staff

Major First Battalion: WILL P. WATSON.

Major Second Battalion: HARRY H. WHITE.
 Regimental Adjutant: EDMUND WELLS.
 Regimental Quartermaster: THOMAS W. RHODES.
 Adjutant First Battalion: T. P. GILMER.
 Adjutant Second Battalion: DOVER TRENT.

Non-Commissioned Staff

Regimental Sergeant Major: H. R. ALBERT.
 Regimental Quartermaster Sergeant:
 Sergeant Major First Battalion:
 Sergeant Major Second Battalion:
 Regimental Color Sergeants: E. J. SMITH and ERNEST
 WHITLOCK.

Band

MR. CLARK PORTER, Leader.

Chief Musician: HAROLD SWOPE.
 Principal Musician: C. B. BROWN.
 Drum Major: J. H. EPPERSON.
 Sergeants. M. B. CAMPBELL,
 C. L. CLARK,
 J. A. KRALL,
 P. K. ANDERSON,
 CALVIN McKEE,
 A. J. MERRILL,
 Corporals: A. E. WHITESIDE,
 H. L. PECK,
 H. J. CLEMMER,
 CHRISTY RUSSELL.

BEST COMPANY

Company H, under command of Captain F. C. Drummond, won the saber presented for the best drilled company for 1911-12. The name of the captain will also be engraved on a silver plate on the pike of the College flag.

FIRST BATTALION

	COMPANY A	COMPANY B	COMPANY C	COMPANY D
Captain	H. R. HEDGER	M. F. MITSCHERICH	J. W. HARVEY	E. C. HEDGER
First Lieutenant	H. T. BONAR	L. O. JACOBS	O. H. REYNOLDS	T. F. FANSHER
Second Lieutenant	W. A. MELTON	R. R. SMITH	W. E. WATSON	E. E. GRAVELLE
First Sergeant	E. R. THOMPSON	A. F. WHIPPLE	J. S. CONNELL	M. E. OLMSTEAD
Sergeants	J. R. REEVE E. H. MARTIN GUY MANTLE J. C. WOODSON	DE LAUNE BAKER E. W. SIMANK L. E. WALKER E. R. PERDUE	W. E. HAGAR R. B. BARR E. WILLIAMSON W. G. FRIEDEMANN	A. R. SMITH A. A. ANDERSON B. O. SIMANK
Corporals	RUSSELL SCRIENER J. L. ROBINSON CARL NOLES J. A. JACKSON A. W. HARDY	M. F. HAMILTON MYRON ANDREWS W. N. CROFFORD M. ROUSE	E. L. SPENCER J. R. AUTREY JOE T. BLACKBURN	ROBT. BROGELMAN R. B. WORTMAN JOE MITCHELL

SECOND BATTALION

	COMPANY E	COMPANY F	COMPANY G	COMPANY H
Captain	G. E. WEAVER	C. L. McILVAIN	A. L. COBB	F. G. DRUMMOND
First Lieutenant	C. H. BLOOM	L. D. HARRISON	H. B. HART	L. B. HUFFMAN
Second Lieutenant	ROBT. SHORT	R. L. WILLIAMS	W. W. FORD	QUENTIN GRAHAM
First Sergeant	GROVER SANDERS	C. R. BOWERS	H. U. GOLTRY	L. G. HERRON
Sergeants	HARRY ROESER E. B. REYNOLDS R. A. WOOD LOUIS BRANTIN G. B. DUNLAP	F. S. REYNOLDS A. C. BRODEI D. L. MANTLE J. J. GETGEY	H. D. BARNES MORTON ENT J. G. SMITH C. C. COBB	ALFRED DRUMMOND A. O. HESION SHANNON KELLY THEO. FRIEDEMANN
Corporals	L. S. WORTMAN CLYDE COOLEY JOE CARTER J. L. ODELL	H. E. JOHNSON H. J. WADE L. E. WOODWORTH I. F. HUDDLESTON	ARMON WILLIAMS C. S. RAY G. L. BOTKIN	I. A. NELSON OSCAR ABERNATHY GEORGE WHITTENBERG

COLLEGE EXTENSION DIVISION

B. C. PITTUCK, *Dean*

The College Extension Division embraces the work of four Departments in the College—Agricultural Extension, Agriculture for Schools, Boys and Girls Clubs, and College Publications. Practically all Departments in the College, and more especially the Agricultural Departments, cooperate with this Division from time to time. Through this Division the College is extending the benefits of its working equipment—Faculty, officers, equipment by Departments, and results of experimental investigations—to the State as a whole by giving instruction and disseminating information to people who are not resident students. During the fiscal year ending June 30, 1912, members of the Faculty and officers of the College visited sixty-seven counties, and at meetings of various kinds lectured and demonstrated to 126,052 persons on subjects relating to agriculture, home economics and rural affairs. This work was well received, as is indicated by the increasing number of requests for assistance this year. The attendance at meetings has increased more than 25 per cent.

Many organizations that are more or less interested in the development of the agricultural resources of Oklahoma are actively supporting the work of this Division. Bankers and business men's organizations, teachers, ministers of the gospel and other agencies, as well as those who are directly concerned, are giving larger attention than ever before to the problems of the farm and the home. These factors, in their several spheres of influence, are earnestly, honestly and substantially aiding the College in the movement for a better and more profitable agriculture.

The service rendered to the people by this Division has been made more efficient and its influence more widespread by the co-operation and assistance of other Divisions of the College, the Board of Agriculture, the Corporation Commission and the railroads. But for these much of the work already done would have been impossible.

Department of Agricultural Extension

B. C. PITTUCK, *Dean, in Charge*

The Department of Agricultural Extension, during the fiscal year ended June 30, 1912, gave instruction to more than one hundred thousand persons residing without the limits of the College campus. Special lectures and demonstrations were given at ninety-six organized farmers' meetings, four special agricultural trains were operated, and one State Fair School, five Encampment Schools, and fifteen short courses were held during the year. In addition to these lectures and demonstrations the Department supplied many State, county and local fairs with expert judges of livestock, farm crops and home economics exhibits. Educational exhibits were also prepared for these fairs, agricultural trains and short courses.

With all the Departments of the Agricultural Division of the College lending their support to this Department, it was unable to meet all the demands made upon it in 1911-12, and many urgent requests for assistance were denied.

The plans for 1912-13 have been better correlated and a more efficient service will be rendered this year. The Department is planning to place a number of traveling libraries over the State. The books in these collections have been carefully selected by competent authorities. Special illustrated lectures on topics of statewide interest are being prepared for circulation among the schools of the State and other interested organizations. A carefully arranged syllabus will be furnished with each set of slides.

This Department will be pleased to hear from all persons and organizations interested in the development of agricultural conditions in Oklahoma.

Department of Agriculture for Schools

S. A. MINEAR, *Acting Professor*

G. W. BARNES, *Assistant*

Oklahoma recognized the importance of teaching practical and industrial subjects in the common schools when at statehood the following clause was inserted in its Constitution:

"The Legislature shall provide for the teaching of agriculture, horticulture, stock feeding and domestic science in the common schools of the State."

In vitalizing this provision of the Constitution, the First State Legislature provided that—

"The elementary principles of agriculture, horticulture, animal husbandry, stock feeding, forestry, building country roads, and domestic science, including the elements of economics, shall be embraced in the branches taught in all the public schools of this State, receiving any part of their support from this State, and these branches shall be as thoroughly studied and taught by observation, practical exercises, and the use of texts and reference books, and in the same manner as are other like required branches in said public schools."

And—

"The Agricultural and Mechanical College shall be the technical head of the agricultural, industrial and allied science system of education . . ."

In order to properly and systematically carry out this statute the Legislature further provided that—

"There is hereby created the Chair of Agriculture for Schools, who shall be a member of the Faculty of the Agricultural and Mechanical College, whose duty it shall be to direct and advise in all matters relating to the teaching of Agriculture and Allied subjects in the common schools, under the supervision of the President of the Agricultural College."

The foregoing quotations clearly indicate the purpose of the Department of Agriculture for Schools. A detailed study is being made of the problems of teaching agriculture, domestic science and allied subjects in the common schools, and these schools throughout the State are supplied with suggestions relative to the operation of industrial branches. The Department is in constant communication with county superintendents of public instruction, superintendents of city schools, teachers and members of school boards. Two-day schools of agriculture and domestic economy are held annually in conjunction with county teachers' summer normal institutes in each of the five Supreme Court Judicial Districts. Lecturers are provided teachers' meetings and associations. Representatives of the Department visit schools and carry on one full day's work at each place with agriculture and domestic science and assist in installing permanent industrial features. Popular bulletins are issued for all Oklahoma teachers, and these bulletins are used freely for class work, school libraries and reading tables. Special bulletins are issued and sent to teachers particularly interested in scientific agriculture and domestic science.

Superintendents and teachers are urged to avail themselves of the advantages offered by this Department for the advancement of practical and industrial education.

Department of Boys and Girls Agricultural Clubs

JOHN W. WILKINSON, *Supervisor*
HENRIETTA KOLSHORN, *Assistant*

The Department of Boys and Girls Agricultural Clubs is a

popular feature of the work of the College Extension Division that reaches to every farm home in the State.

These clubs are organized and conducted by the Oklahoma Agricultural and Mechanical College in cooperation with county superintendents of public instruction and teachers as a practical and effective feature in teaching the elementary principles of agriculture, domestic science and other closely allied branches.

The work originated in 1909 when a State Club was organized with 569 active members. Since that time the work has grown rapidly. During the past year the Department organized 1,278 local clubs and fifty-eight county clubs with a membership of 16,261 boys and 15,432 girls, making a total enrollment of 31,693 members.

Our State officers, as well as prominent business men and leading educators all indorse and advocate the organization of Boys and Girls Agricultural Clubs. Governor Cruce, in a communication to President J. H. Connell, says:

"The Agricultural Club movement is one that should receive the hearty support of every citizen of the State who is interested in its growth and development. The boys and girls engaged in this endeavor are to be congratulated upon the true Oklahoma spirit they are displaying. They are doing a work that will not only yield its returns to them in dollars and cents when they have grown to manhood and womanhood, but will yield to them a still richer return, in the consciousness of having performed a work of worth for the State.

"I want most heartily to endorse the movement inaugurated in this State. If there is anything I can do to aid you in your endeavor along this line, do not fail to command me."

State Superintendent of Public Instruction R. H. Wilson, in a letter to county superintendents, says:

"I wish to invite and urge all county superintendents to cooperate with the management of the Oklahoma Agricultural and Mechanical College, and recommend that you take an active interest in presenting this matter to the teachers of your county and urge upon them that they take an active part in organizing the Boys and Girls Agricultural and Domestic Science Clubs in their schools."

The cooperation of the teachers of the State is absolutely necessary to make the club work a complete success. All progressive teachers, whether in city or in rural schools, should endeavor to inspire, encourage and to assist boys and girls in such work. In this they will be well rewarded for all their efforts, for, as the work progresses, problems of discipline will vanish; school activities will augment and improve; the whole community will take renewed interest in the school and its support will become liberal.

Boys and girls who live in the city should be as keenly interested in this work as those living in the country. All contests will be open to them. The many hundreds of unsightly back yards and weedy vacant lots, now uncultivated and useless, can be made into attractive and practical gardens, or profitable field plots. Many property owners are often only too glad to offer the use of their lots free for such enterprises.

PURPOSES OF CLUB WORK

The purposes of the Oklahoma Boys and Girls Agricultural Clubs are—

To acquaint the boys and girls of Oklahoma with the State system of agricultural and industrial education extending from the common schools through the District Agricultural Schools to the A. and M. College; to arouse interest and wholesome respect for the farm and rural home in every member at the opportune time; to vitalize the studies for children in the common schools; to develop in due course a system of education in common schools suited to the children of the common people; to lead men and boys to study farm problems on their own farms; to lead women and girls to study home and family problems in their own homes; to encourage club members to be constructive citizens, producers as well as consumers; to show the relation of the club acre, garden plot and home interests to our common school; to awaken our people to the importance, the advantages and the possibilities of farm life; to inculcate a class sentiment and sense of independence in the minds of farm-reared children; to organize in the rising generation the farm community as an independent social unit.

MEMBERSHIP

There are three classes of members in the Oklahoma Boys and Girls Agricultural Clubs:

1. Local Club members.
2. County Club Members.
3. State Club Members.

All boys or girls not under nine (9) nor over eighteen (18) years of age are eligible for membership in the Oklahoma Boys and Girls local agricultural clubs, and when their applications are properly approved by their local teacher or president of the school board as supervisor, they may receive literature free and enter various local, county, district and State contests arranged for members of such clubs.

LOCAL CLUBS

A handsome charter will be issued to five or more members in any school district desiring to organize a local club when they make application on the regular blanks and adopt a constitution and code of by-laws approved by the A. and M. College. The teacher, the clerk of the school board, or some good, practical farmer should act as local manager or supervisor for the club. The supervisor should arrange for a school fair some time during the school session and provide suitable local contests and prizes under the direction of the A. and M. College.

COUNTY CLUBS

The club work in each county is under the supervision of the county advisory committee, consisting of the county superintendent of public instruction, the secretary of the Farmers' Institute, and the secretary of the Woman's Auxiliary to the Farmers' Institute. The county superintendent of public instruction in each county is expected to act as the county manager under the direction of the advisory committee. If for any reason he is unable to act in this capacity the advisory committee should select some other person for this work at the earliest possible date.

The county superintendent or county manager should issue a call for the organization of a county agricultural club and the election of temporary officers as early as possible during the spring. The permanent organization and the annual election of

officers should take place at the county seat not later than the last Saturday in March. In order to secure a large attendance at each of these meetings, there should be an interesting program provided in which many of the boys and girls would be interested. This may be held in connection with a county teachers' meeting, or any other public meeting where a good attendance of the boys and girls of the county can be secured. In every case the officers of the Farmers' Institute, Woman's Auxiliary, the county fair, commercial clubs, Y. M. C. A., Boy Scouts, or other public organizations, teachers and all leading citizens of the county should be invited to cooperate with the county superintendent in securing a meeting of the boys and girls for organizing a county agricultural club. At the first meeting the county club constitution furnished by the A. and M. College should be adopted, officers elected, the organization perfected, and plans for the coming year arranged as far as possible. Upon the proper application of five or more local clubs through the president and secretary of the county club, approved by the county superintendent as county manager, a special county charter will be issued by the A. and M. College, which will insure the cooperation and support of the club work by the A. and M. College and the State Board of Agriculture, and will entitle all members of the club to free subscriptions to *The New Education*, free bulletins, and the privilege of entering county club contests arranged by the A. and M. College.

STATE CLUB

All boys or girls of white parentage who are not under nine nor over eighteen years of age, living in counties where no county or local club can be organized, may apply to the A. and M. College at Stillwater, Oklahoma, and have themselves enrolled as members of the State Club. All members of local or county clubs are accounted members of the State Club without further enrollment.

CONTESTS

All members of the Boys and Girls Agricultural Clubs for 1913 are expected to enter one of the contests provided for them by the A. and M. College. The county club contests planned for 1913 for boys and girls fourteen to eighteen years old are as follows:

1. Grain Contest.—Best essay, report and exhibit from one acre of kafir, milo or corn.
2. Sewing Contest.—Best essay, report and exhibit of three sewing models, consisting of nightgown, skirt and dress, as described in sewing bulletin.
3. Miscellaneous Crop Contest.—Best essay, report and exhibit from one acre of cotton, cowpeas or peanuts.
4. Canning Contest.—Best essay, report and exhibit of six or more glass quart jars of canned fruit and vegetables, including at least two varieties of each.
5. Hog Contest.—Best essay, report and exhibit of a live hog, not over eight months old, raised and fitted by contestant.
6. Cooking Contest.—Best essay, report and exhibit of one loaf of bread and one kind of cake made by the contestant.

PRIZES

In addition to the usual prizes offered in the county contests, such as free scholarships to the District Agricultural School Short Courses, the State Fair School at Oklahoma City, the Farmers' Short Course in the A. and M. College, and the grand prizes of two scholarships in the A. and M. College, worth \$160.00 and the four scholarships in the District Agricultural Schools, worth \$90.00 each, there will be a large number of cash prizes and gold medals offered by friends of the College and other cooperative agencies in a statewide contest that will be held at the Farmers' Short Course in Stillwater next January. A detailed statement concerning the contests arranged and a full list of prizes to be awarded will be sent upon request.

WINNERS OF SCHOLARSHIPS

Prize winners in the various county club contests who attended the State Fair School and the Short Courses at the District Agricultural Schools engaged in a spirited contest for a free trip and a week's scholarship at the Farmers' Short Course which was held at the A. and M. College in Stillwater, January 13 to 18, 1913.

Fifty-one delegates from these schools attended the Farmers' Short Course and competed for the two scholarships good for one year in the A. and M. College offered to the boy and to the girl

making the highest grades; and for the four scholarships good for one year in the District Agricultural Schools offered to the two boys and the two girls making the next highest grades.

These scholarship awards were made as follows:

I. A. AND M. COLLEGE

1. Miss Nellie Price, R. F. D. 4, Hobart, Oklahoma.
2. Mr. Alfred Huguley, R. F. D. 1, Balko, Oklahoma.

2. DISTRICT AGRICULTURAL SCHOOLS

2. Miss Lucy Marsh, R. F. D. 1, Kingfisher, Oklahoma.
2. Miss Osie B. Loveless, R. F. D. 3, Frederick, Oklahoma.
3. Mr. P. T. Hamilton, R. F. D. 1, Geronimo, Oklahoma.
4. Mr. Gilbert Hendrick, R. F. D. 1, Manchester, Oklahoma.

Department of College Publications

WALTER STEMMONS, *Editor*
E. J. WESTBROOK, *Superintendent of Printing*

This Department has immediate supervision of all College publications, its printing and press service. It was organized for the purpose of systematizing the printed records and the great volume of printed information issued and distributed by the College each year. All College publications are sent free of cost to any interested person in Oklahoma.

Through this Department the College presents to the people of the State all matters of interest with regard to its organization and work, and from its several Departments the results of careful thought and research relating to agriculture, industrial and scientific problems. The several catalogs concern the many courses of instruction and student affairs; The New Education, issued semi-monthly, is the official organ of the College and contains information of value to patrons, students and the State at large; College and Experiment Station bulletins concern questions of general, experimental and technical interest to the farmer and the farm home, the many agricultural organizations, the research student, and all who are in sympathy with agriculture and its development; twice each month articles of timely interest are furnished the State press in the form of clip sheets. These publications and many others are issued each year and all have been well received as is indicated by the constant and growing demand for additional service.

The following bulletins are now available and will be sent free of cost upon request:

College Bulletins: No. 3, Selecting Corn for Seed; No. 7, Special Course in Dairying; No. 14, Oklahoma School Hotbeds; No. 18, Cooking Lessons Nos. 1, 2, 3; No. 19, Buttermaking; No. 20, Milk Testing and Dairy Records; No. 22, Dairy Herd Records; No. 23, Sewing Course, 4, 5, 6; No. 24, Cooking Lessons 4, 5, 6; No. 26, Improvement of Rural School Conditions; No. 26, Spring Laboratory Methods; No. 28, Cotton Culture; No. 29, Corn Culture; No. 30, Miscellaneous Crops; No. 31, Kafir and Milo Culture; No. 32, Broomcorn; No. 34, Hog Selection and Feeding; No. 35, Announcements to Oklahoma Schools; No. 36, Nature Study; No. 38, How to Secure Free Literature; No. 39, School District Agricultural Resources; No. 40, School of Agriculture and Domestic Economy; No. 41, Nature's Cycle; No. 42, Hibernation of Insects; No. 43, Role of Organic Matter, etc., in Soil; No. 44, Suggestions, etc., Feeding Dairy Stock; No. 45, Broad Terraces; No. 46, Relative Economy of Food Producing Farm Animals; No. 47, Sewing; No. 48, Home Canning; No. 49, Planting of Trees; No. 50, Cooking; No. 51, College Catalog 1913-14; No. 52, Plans for 1913 Contests for Agricultural Clubs; No. 53, Hog Cholera and Its Prevention; No. 54, Summer School Catalog; No. 55, Cowpeas; No. 56, Market Poultry and Eggs; No. 57, Blackleg in Cattle; No. 58, Hog Cholera and Blackleg.

Experiment Station Bulletins and Circulars: No. 66, The Water Supply; No. 67, Miscellaneous Water Analyses; No. 69, Small Fruits; No. 72, Tests of Dips as Lice and Tick Killers; No. 75, A Study of the Bacterial Content of Cream; No. 88, Southern Plum Aphis; No. 89, Chemistry of the Kafir Corn Kernel; No. 90, A Study of Bermuda Grass; No. 91, The Twig Girdler; No. 92, Spray Calendar; No. 93, Artificial Insemination; No. 94, Hog Feeding; No. 95, Varieties of Fruits Raised in Oklahoma; No. 96, Vitality of Reproductive Cells; No. 97, Cotton Culture; No. 98, Cotton or Melon Aphis; No. 99, Some Results Obtained in Feeding Dairy Cows; No. 100, Garden and Truck Crop Insect Pests. Circulars: No. 6, The Bacterial Properties of Various Disinfectants; No. 7, The Value of Cotton Improvement; No. 12, Summary of Experiment Station Work; No. 13, Selecting an Orchard Site; No. 14, Protecting Trees from Rabbits; No. 15, Some Types of Silos; No. 18, Experiment Station Work; No. 19, Spanish Peanuts; No. 20, Systems of Planting for Orchards; Nineteenth and Twentieth Annual Report; Twenty-First Annual Report; Twenty-Second Annual Report.

All catalogs, bulletins, pamphlets, leaflets, papers, stationery, etc., sent out and used by the College are printed in the College

printing office. This office occupies the basement of Central Building, with an office for the Superintendent, job and makeup room, machine room, pressroom, folding and storage room. Its working equipment includes a Mehlie cylinder press, two C. P. Gordon job presses, a standard No. 5 Mergenthaler linotype, one Dexter periodical folder, one Rosback stapling machine, one punching machine, one paper cutter, etc., all of which are operated by individual motors.

THE AGRICULTURAL EXPERIMENT STATION

JAS. A. WILSON *Director*

The Agricultural Experiment Station was established as a Department of the Oklahoma Agricultural and Mechanical College twenty-one years ago. It is endowed by Federal funds provided by Acts of Congress approved March 2, 1887 ("Hatch Fund"), and March 16, 1906 ("Adams Fund"). These funds now provide \$15,000.00 each. The former may be used for general investigations and experimental tests with livestock, soils, fruit growing, farm crops, insect pests and fungus diseases, etc. The latter is expended on original research lines only, connected with the agricultural problems of the State, and seeks to add to the store of scientific agricultural information as well as to aid the farmer in the solution of the many difficulties which confront him in everyday farm practice.

The Oklahoma Station now has under way forty-five projects or lines of experimental and research work. Thirty are under the "Hatch Fund" and fifteen are under the "Adams Fund". All of these lines are being conducted at the Station at Stillwater, Payne County, with the exception of Adams Project No. 5, "Breeding of Grain Sorghums", Agronomy Department, which is being conducted at Goodwell, Texas County, on the farm of the Panhandle Agricultural Institute. Oklahoma presents a remarkable variety of soil types, surface conditions and amounts of annual precipitation. For these reasons the soil problems as well as those connected with the resistant powers of vegetable life, likewise their adaptation, are quite varied in this State, and are calling for the attention and study of our ablest scientific workers connected with the College Faculty.

The Oklahoma Experiment Station has published 100 regular bulletins, 183 press bulletins, nineteen circulars of information and twenty-one annual reports, besides a great volume of articles for the agricultural press and over twenty thousand answers annually to personal inquiries.

The College Extension Division comes at an opportune time to the aid in the dissemination of the large body of accumulated agricultural and mechanical information.

SPECIMEN ENTRANCE EXAMINATION QUESTIONS

Those desiring to enter the regular College courses and having no common school or high school diplomas will do well to carefully examine the list of specimen questions herein set forth and satisfy themselves that they can answer such questions before applying in person at the College for admission to the Business Course, Sub-Freshman, Freshman or Sophomore classes. No examinations are required for admission to any of the Short Courses in agriculture and domestic science.

SUB-FRESHMAN CLASS AND BUSINESS COURSE

Arithmetic

I

If 4 cu. ft. of iron weigh a pound, find the weight of a rectangular vessel an inch and a half thick without a top, the vessel being $10\frac{1}{2}$ ft. by 8 1-3 ft. by $5\frac{1}{4}$ ft. outside measure.

II

A cu. ft. of water weighs 1,000 oz.; find the number of grains in a cu. inch.

III

Explain whether .023 or .024 is more nearly equal to .02349 and write in figures and in words the number that expresses the difference between the number .02349 and the other one of the two that is nearest in value to it.

IV

Which is the better investment, bonds bought at 112 yielding 6 per cent interest, or stocks bought at 85 yielding 4 per cent dividends?

V

When it is 2 p. m. Sunday, February 15, at Greenwich, what time and date is it 165° west?

VI

Simplify:
$$\begin{array}{r} 4.561 \quad 0.0075 \\ \hline \times \\ \hline 0.015 \quad 21.05 \end{array}$$

VII

How many rolls of paper 20 in. wide and 12 yds. long will be required to paper a room 16 ft. long, 12 ft. wide, and 9 ft. high, allowing 36 sq. ft. for windows and doors?

VIII

Find the trade discount on a bill of goods amounting at list price to \$360.00, but sold 30 per cent, 8 per cent and 5 per cent off.

IX

The specific gravity of copper is 8.9, of silver 10.9, and in the alloy of these metals the weight of the copper is to the weight of the silver as 5:6. Find the ratio of the bulk of copper in the alloy to the bulk of the silver in it.

X

- (a) Find the cube root of 4529.29.
- (b) Find the square root of the same number.

Grammar

Write the plural for each of the following: Church, ax, fife, cuff, axis, datum, nebula, sheaf, penny, alley, son-in-law.

Name all the different classes of pronouns and give two examples of each.

(a) Use an infinitive as the subject of a sentence. (b) As an object of a transitive verb. (c) As the subjective complement.

(a) Principal parts: See, sit, set, lie, lay, come, burst. (b) Pluralize: Forget-me-not, father-in-law, deer, it, genius.

Decline in singular and plural, I, man, which, he, John. What is voice? Change the voice in the following sentence: John discovered coal on his farm.

United States History

Compare the colonists of Virginia and Massachusetts as to ancestry, religion and occupation.

Name three important inventions and show their effect upon our industries.

Discuss causes of the Civil War: As to different constructions of the Constitution and different systems of labor in North and South.

Give cause of, and extent of, the application of the Emancipation Proclamation.

Give four of the principal issues of the campaign of 1908.

Geography

Discuss the climate, elevation and rainfall of Oklahoma.

Name five Indian tribes in Oklahoma and tell where each is found.

(a) Name the New England States and give the capital of each.

(b) Name five important industries of this section.

Discuss the drainage of North America and name eight important rivers.

Discuss briefly the foreign possessions of the United States.

Name the planets in their order from the sun.

FRESHMAN CLASS**Algebra**

$$(a) (x+y)^2. \quad (b) (2a+3b)^2. \quad (c) (2a+3b)^3.$$

$$(a) (x^5-y^5) \div (x-y). \quad (b) (x^7+a^7) \div (x+a).$$

Factor:

$$(a) 6a^2-5a-4. \quad (b) 27x^3-64. \quad (c) a^2-b^2x^2.$$

$$(d) 1-x^4. \quad (e) a^4+4. \quad (f) x^2-x-30.$$

What is that number which when divided by three is equal to one-quarter of the sum of itself and twenty-five?

Solve:

$$2x+2y+4z=20.$$

$$3x+4y+5z=26.$$

$$3x+5y+6z=31.$$

$$\text{Solve: } 6x-1=3x^2.$$

$$\text{Solve: } \frac{4x-3}{16} - \frac{x-2}{4} = \frac{2x-2}{5x+2}$$

Multiply:

$$(a) 2+\sqrt{5} \text{ by } 2-\sqrt{5}.$$

$$(b) 3-\sqrt{15} \text{ by } 2+\sqrt{5}.$$

$$(c) \sqrt{\frac{3}{5}} \text{ by } 3\sqrt{\frac{20}{108}}.$$

Literature

(It is to be remembered that these are *specimen* questions, and that when a candidate for admission has had an assignment of literature equal to, though somewhat different from, that implied

in the following examination, a corresponding variation is made in the questions.)

1. Give a description of the fireside scene in "Snowbound", telling how the family spent the winter evening.

2. Explain how the Wildfire incident connects the main plot and the underplot in "Silas Marner".

3. Locate and briefly characterize the following persons: Lorenzo, Basil, Lepidus, Scrooge, Nancy Lammeter, Miles Standish, Roderic Dhu.

4. Answer concisely the following questions:

(a) What part does the soothsayer play in "Julius Caesar"?

(b) What qualities in Antony do we admire?

(c) Why do the conspirators make Brutus leader?

(d) What ground had Shylock for disliking Antonio?

(e) By what arguments did Portia show that Shylock could not collect the forfeit?

(f) What historical basis is there for the story of "Evangeline"?

(g) What song was sung by Ellen to Fitz-James?

5. Explain the meanings of the italicized words:

"There, where your *argosies* with portly sail,
Like *signiors* and rich burghers on the flood,
Or, as it were, the *pageants* of the sea,
Do *overpeer* the petty *traffickers*."

6. (a) What poetry have you committed to memory?

(b) With what parts of the Bible are you familiar?

Composition

1. Do you own a dictionary? What one? If not, with what dictionary are you familiar? Explain what one can find in a dictionary besides definitions. Illustrate by telling what one will find in the dictionary concerning some word with which you are familiar.

2. Tell what experience you have had in theme-writing and when and where you had it. How often did you write themes? What kinds? What was your teacher's method of criticising the themes?

3. (a) Mark the pronunciation of the following words: Finance, romance, zoology, precedence, precedents.

(b) Write the following words, spelling correctly and marking pronunciation: Seperate, somebody, catcher, main-

tainance, occassion, discribe, intreat, college, cieling, dissapoint, imagine.

4. Explain carefully how to use quotation marks.

5. Give the principal parts of the following verbs: *Lie, lay, fly, flee, flow, lose, loose, burst, ride, see, sit*. Use the past participle of each verb in a sentence.

6. Write a short theme explaining how to play some simple and familiar game.

Physiology

Name three kinds of tissues; name the bones of the arm and describe the structures found around a perfect joint.

Describe the structure of a tooth and give the number and arrangement of the permanent teeth.

Describe the circulation of the blood through the heart, and tell in what ways the portal circulation is peculiar.

Describe the structures of either the eye or the ear and give the function of the various parts.

Name three of the digestive fluids, the ferment or enzyme contained, and the function of each.

SOPHOMORE CLASS

Geometry

1. Draw common internal and external tangents to two circles not intersecting. Prove your construction.

2. Define: Radian, third proportional, locus, median, altitude, lune, trihedral angle.

3. In any triangle the square of the side opposite an acute angle is equal to the sum of the squares of the other two sides, less twice the product of one of those sides and the projection of the other upon that side. Prove.

4. Construct a triangle having given a side and the altitudes to the other two sides.

5. The circumference of a circle and the perimeter of a square are equal. Compare the areas of circle and square.

6. Prove that a triangular pyramid is equal to one-third of a triangular prism having the same base and altitude.

7. Find the total area of a hemispherical bowl one inch thick, whose external diameter is 12 inches.

8. What is the ratio of the volume of a sphere to its circumscribed cube?

Algebra

Solve: (a) $(2x^2-1)^2-5(2x^2-1)=14$.

Divide: (b) $(x^{\frac{5}{2}}+x^2+x^{\frac{3}{2}}+x+x^{\frac{1}{2}}+1)$ by $(x+x^{\frac{1}{2}})$.

Extract the square root of:

$$9a^2-6ab+30ac+6ad+b^2-10bc-2bd+25c^2+10cd+d^2.$$

Solve:

$$\left\{ \frac{x+3b}{8a^2-12ab} - \frac{3b}{9b^2-4a^2} - \frac{a+3b}{(2a+3b)(x-3b)} = 0. \right.$$

One edge of a rectangular box is increased 6 inches, another 3 inches, and the third is decreased 4 inches, making a cube whose volume is 864 cubic inches greater than that of the original box. Find its dimensions.

Solve:
$$\begin{cases} \frac{x+y}{x-y} - \frac{x-y}{x+y} = \frac{89}{40} \\ 6x=20y+9. \end{cases}$$

The weights of bodies of the same shape and of the same material vary as the cubes of corresponding dimensions. If a man 5 feet 9 inches tall weighs 165 pounds, what should be the weight of a man of similar build 6 feet tall?

Solve:

$$(a) \quad \sqrt{3+x} + \sqrt{x} = \frac{6}{\sqrt{3+x}}$$

$$(b) \quad \sqrt{\frac{x}{4}} - 3 + \sqrt{\frac{x}{4} - 3} = \sqrt{\frac{2x}{3}}$$

How can the solution of two simultaneous equations be represented graphically?

Find the lowest or highest point on the curve—

$$y=ax^2+bx+c.$$

Physics

1. A body moving with uniform acceleration passes over distances of 13 and 23 meters in the seventh and twelfth minutes respectively. Find the initial velocity and its acceleration.

2. How many grams of water will evaporate in a closed room 18x20x4 meters if the temperature is 20° C? Density of saturated vapor at 20° C. is .0000172.

3. How much water at 20° C. must a brass vessel weighing 500 grams contain in order that the resulting temperature after condensing five grams of steam at 100° C. will be 90° C., assuming that no heat is lost to or gained from the surrounding bodies. Specific heat of brass is .094.

4. Derive equation for total space passed over in t seconds by a uniformly accelerated body started from rest.

5. A lever is 5 feet long. Where must the fulcrum be placed so that a weight of 398 pounds at one end will be balanced by a 100-pound weight on the other? Prove your results to be correct by the principle of moments.

6. Explain why the temperature of ether drops so quickly when placed in a vessel where it may evaporate rapidly.

7. If a boy is able to lift 50 kilograms, what is the weight of a stone in air that he is just able to lift under water? Specific gravity of stone is 3.

8. What is meant by the term mechanical equivalent of heat? Describe any method by which it has been determined.

9. Two wires of the same material and length, but the diameter of one is twice that of the other. If a force of 5 kg. stretches the smaller one 1 mm., what force is necessary to stretch the larger one 1.2 mm.

10. Define: Work; kinetic energy; potential energy; power. Give the units in which these may be expressed.

11. To what depth will a cube of cast iron 2 cm. on each side and density of 7.2, sink in mercury of density 136?

12. Change 30° Centigrade to the corresponding temperature Fahrenheit.

Change 4° Fahrenheit to the corresponding temperature Centigrade.

Describe the standard air thermometer and tell how it is operated.

Composition

1. What is the difference between exposition and argumentation?

2. Define periodic sentence; loose sentence. Illustrate each by an example containing at least thirty words.

3. What is meant by paragraph coherence? How may coherence be secured in a paragraph?

4. Examine the following passage carefully, noting every error of grammar (including punctuation) and of spelling. Rewrite the passage, not improving it *rhetorically*, but confining yourself strictly to correcting errors of the kinds mentioned above:

There was seven of the sophomores which came in we two boy's room as we were lying on the floor saterday and neither of them were known to John or I. I said to John It don't seem possible they could have broke in so easy. No he replied they must of bursted the outside door or else broke the lock. Everybody that get those kind of locks for their door always find them worthless. Let's you and I tell that largest fellow (he that come in first I mean) that if we were him we would tend to our own business and not be acting in that kind of a way.

5. Explain in 200 words how to make something. (Work notably defective in spelling, grammar, punctuation or division into paragraphs will prevent the student's passing.)

Literature

1. Trace the influence of the witches upon Macbeth.
2. Give the Shakespearian meaning of the following terms: *incarnadine*, *scotch*, *Valour's minion*, *posset*, *brinded*.
3. How do you account for the feelings of the prisoner of Chillon upon being set free?
4. Scan and give the name of the meter of each:
 - (a) "In the desert a fountain is springing,
In the wide waste there still is a tree."
 - (b) "She walks in beauty, like the night
Of cloudless climes and starry skies."
5. Characterize briefly the following mythological characters and places: Psyche, Styx, Apollo, Minerva, Olympus, Leander.
6. Contrast the character of Shylock in "The Merchant of Venice" with that of Isaac in "Ivanhoe".
7. Describe, as vividly as possible, the appearance and disappearance of the hidden army of Roderick Dhu.
8. Write a brief character sketch of Sydney Carton ("A Tale of Two Cities"), or Louis XI ("Quentin Durward").
9. Discuss the relation of the background to the characters in a short story, illustrating by reference to some good short story which you have studied.

10. Explain the meaning of the following terms used in the discussion of dramas: Nemesis, climax, turning point, complication, resolution, tragedy, comedy, catastrophe, rising action.

Advanced Algebra for Engineering Division

Define function. Given: $f(x) = \frac{x^3-3}{x+1}$ find $f(2+\sqrt{3})$.

Prove by mathematical induction that

$$1^2+2^2+3^2+- - -+n^2 = \frac{n}{6}(n+1)(2n+1).$$

Define complex number. Express $x+y\sqrt{-1}$ in another form using the amplitude and modulus.

Multiply:

$$(a+b\sqrt{-1}) \text{ by } (c+d\sqrt{-1})$$

Solve by logarithms:

$$5^{(n^2-3n)} = \frac{1}{25}$$

In how many years will \$1,000.00 amount to \$2,000.00 at a rate of $6\frac{1}{2}$ per cent compound interest?

Prove: The limit of the quotient of two variables is the quotient of the limits of the variables, provided the limit of the denominator is not zero.

Express as an ordinary fraction the repeating decimal 0.0621621 . . .

What is the equation whose roots are the arithmetical and harmonical means of the roots of $x^2-16x+48=0$?

OFFICIAL LIST OF TEXT BOOKS

Following is the list of textbooks by courses for the several Departments of the College giving name of text, author and the price of each, adopted by the Faculty April 22, 1913.

Notebooks are not listed. Uniform notebooks have been adopted by the Faculty and will be used by all Departments of the College requiring the use of notebooks. The notebook used for theory work will cost five cents and the notebook used in practicum work will cost not to exceed thirty cents. Specimens of these notebooks are on file in the President's office.

AGRICULTURAL DIVISION

Department of Animal Husbandry

ANIMAL HUSBANDRY:

1 <i>a-b</i> , No text.	
2 <i>a-b</i> , Types and Breeds of Farm Animals—Plumb	\$ 2.00
3 <i>a-b</i> , Principles of Breeding—Davenport.....	2.50
4, Feeds and Feeding (Latest Edition)—Henry.....	2.00
5, Livestock Judging—Craig.....	1.50
7 <i>a-b</i> , No text.	
9, 10, 11, Principles and Practice of Poultry Culture—Robinson.....	2.00

Department of Agronomy

AGRONOMY:

1, Farm Machinery and Motors—Davidson & Chase.....	\$ 2.00
2, Soils—Lyons & Fippin.....	1.75
3, Examining and Grading Grains—Lyons & Montgomery.....	.50
4, Southern Field Crops—Duggar.....	1.75
5, 6, No text.	
7, Farm Management—Warren.....	1.75
8 <i>a-b</i> , Soil Fertility and Permanent Agriculture—Hopkins.....	2.25
9, Elements of Agriculture—Warren.....	1.10
10, An Introduction to Geology—Scott.....	2.60
11, 12, 13, No text.	

Department of Dairy Husbandry

DAIRYING:

1, Dairy Laboratory Exercises (Second Edition)—Potts.....	.35
2, Questions and Answers in Milk Testing—Publow.....	.50
3, Principles and Practice of Buttermaking—McKay & Larson.....	1.50
Practical Buttermaking—Myer.....	1.50
4, Cheese Making—Decker.....	1.75
Fancy Cheese in America—Publow.....	.50
5, Dairy Cattle and Milk Production—Eckles.....	.50
6, No text.	
7, Instruction for Traction and Stationary Engines—Boss.....	1.00
8, Dairy Technology—Larson & White.....	1.50

Department of Horticulture and Botany

HORTICULTURE:

1, Lessons in Fruit Growing—Goff.....	1.00
2, Vegetable Gardening—Watts.....	1.75
3, Principles of American Forestry—Green.....	1.50

4, Nursery Book—Bailey.....	1.60
5, No text.	
6, Systematic Pomology—Waugb.....	1.00
7, Genetics—Walters.....	1.50
8, Landscape Gardening—Kemp.....	1.50

BOTANY:

1 <i>a-b</i> , Principles of Botany—Bergen & Davis.....	1.50
2, 3, Plant Physiology—Duggar.....	2.00
4, Fungous Diseases of Plants—Duggar.....	2.00
5, New Manual of Botany (Seventh Edition)—Gray.....	2.50
6, No text.	
7, Methods in Plant Histology—Chamberlain.....	2.00
8, 9, No text.	

ENGINEERING DIVISION

Department of Mechanical Engineering

MECHANICAL ENGINEERING:

1, 2, 3 <i>a-b</i> , 4, No text.	
5, Elementary Mechanics—Merrill.....	\$ 1.50
6 <i>a-b-c</i> , Mechanical Drawing—C. L. Adams, Van Nostrand.....	3.00
Drawing Instruments about.....	10.00
8, Kinematics—Schwab & Merrill.....	3.00
9 <i>a-b</i> , Same as M. E. 6 <i>a-b-c</i> .	
10 <i>a-b-c</i> , No text.	
11 <i>a-b</i> , Thermodynamics—Reeve.....	2.50
12, Elements of Steam Engineering—Spangler, Green & Marshall.....	2.50
13 <i>a-b-c</i> , Machine Design—Unwin.....	3.00
14, Hydraulic Engineering—Turneure & Black.....	3.00
15, Internal Combustion Engines—Hogle, McGraw & Hill.....	3.00
16, Steam Power Plants—Meyer.....	2.00
17, No text.	
18, Heating and Ventilating—Carpenter.....	3.50
19 <i>a-b</i> , No text.	

Department of Electrical Engineering and Physics

ELECTRICAL ENGINEERING:

• 1 <i>a-b</i> , Elements of Electrical Engineering, Vol. I—Franklin & Esty.....	\$ 4.50
2 <i>a-b-c</i> , 3, No text.	
5, Storage Battery Engineering—Lyndon.....	3.00
6, Electrical Engineer's Handbook—Foster.....	5.00
7 <i>a-b-c</i> , Elements of Electrical Engineering, Vol. II—Franklin & Esty.....	3.50
8 <i>a-b-c</i> , Transactions A. I. E. E.....	2.50
9, Design of Dynamos—Thompson.....	3.50
10, 11, No text.	
12, Power Plant Engineering—Weingrein.....	5.00
13, No text.	
14, Blueprints of Circuits.....	1.00
15, 16, No text.	

PHYSICS:

1, 5, First Course in Physics—Millikan & Gale.....	1.25
2, 3, 4, College Physics—Kimball.....	2.75

Department of Civil Engineering

CIVIL ENGINEERING:

1, Surveying—No text.	
2, Principles and Practice of Surveying, Vol. I—Breed & Hosmer.....	\$ 3.00
3, Railroad Curves and Earthwork—Allen.....	2.00
4, 5, No text.	
6, Roads and Pavements—Spaulding.....	2.00
7, No text.	
8, Irrigation Engineering—Wilson.....	4.00
10 <i>a-b</i> , Applied Mechanics for Engineers—Hancock.....	2.00
11, Hydraulics—Russell.....	2.50
12, Framed Structures, Part I—Johnson, Bryant & Turneure.....	3.00
13, No text.	
14, Masonry Construction—Webb & Gibson.....	3.00
15, Same as C. E. 14.	
16, Sewerage—Folwell.....	3.00
17, Public Water Supply—Turneure & Russell.....	5.00
18, Strength of Materials—Laboratory Manual.....	.75

Strength of Materials—Hancock & Slocum.....	3.00
19, Elements of Railway Engineering—Raymond.....	3.50
20, Specifications and Contracts—Wadell & Wait.....	1.00
21, 22, 23, No text.	

Department of Architectural Engineering

ARCHITECTURAL ENGINEERING:

1, Building Construction, Vol. II—Kidder.....	\$ 3.50
2, History of Architecture—Hamlin.....	1.70
3, Architectural Drawing—Bourne.....	1.50
4, Lettering—French & Meiklejohn.....	1.00
5, Principles and Practice of Plumbing—Cosgrove.....	3.00
6, Details of Building Construction—Martin.....	1.75
Stonecutting and Masonry—Siebert-Biggin.....	1.50
7, The American Vignola, Part 1—Ware.....	2.25
8, Architectural Perspective—Ferguson.....	1.50
9, Pen Drawing—Maginnis.....	1.00
10 a, Design—Kelly & Mowil.....	1.50
10 b, Factories and Workshops—Thwaite.....	2.50
11, Steel Construction—Tucker.....	1.50
12, Estimating—Nichols.....	1.00
13, Building Superintendence—Nichols.....	1.50
14 a-b-c, No text.	
15, High Office Buildings—Birkmire.....	3.50
16 a, Successful Houses—White.....	2.00
Drawing Instruments about.....	5.00
17 a, Descriptive Geometry—Faunce.....	1.25
17 b, Shades, Shadows and Perspective—Lawrence.....	1.00
18, Development of Ornament—Lindenberg.....	3.00

DOMESTIC SCIENCE AND ARTS DIVISION

Department of Domestic Science

DOMESTIC SCIENCE:

2 a-b, Food and Dietetics—Hutchison.....	\$ 3.00
5, Good Manners for All Occasions.....	1.50
6 a-b-c, Same as 2 a-b.	
12 a-b-c, Equipment for Teaching Domestic Science.....	.75
Elements of the Theory and Practice of Cookery.....	1.25
14 a-b-c, The Boston Cooking School Cook Book.....	1.50
Card Catalog.....	.75
19 a-b-c, The Chemistry of Food and Nutrition—Sherman.....	1.50
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20, Water Color Paints.....	.75
Catalogs of Furniture.....	.50

Department of Domestic Arts

DOMESTIC ARTS:

1 a-b-c, 2 a-b-c, 3 a-b, No text.	
4 a-b-c, Textiles and Clothing—Watson.....	\$ 1.00
5, 6, 7, 8, 9, 10 a, 11 a-b, No text.	
12 a-b-c, Domestic Art in Woman's Education—Cooley.....	1.25
13, 14, No text.	

SCIENCE AND LITERATURE DIVISION

Department of Zoology and Veterinary Medicine

ZOOLOGY:

1, Manual of Zoology—Parker & Haswell.....	\$ 1.60
2, Histology and Organography—Hill.....	2.25
3, General Biology—Needham.....	2.25
4, Embryology—Foster & Balfour.....	2.20
5, Comparative Anatomy—Wiedersheim.....	3.00
6, No text.	

PHYSIOLOGY:

1, Physiology—Kirk.....	2.50
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BACTERIOLOGY:

1, General Bacteriology—Jordan.....	2.25
2, Agricultural Bacteriology—Lippman.....	2.00
3, Technical Bacteriology—Bolduan.....	1.70
4, 5, Household Bacteriology—Buchanan.....	2.00

VETERINARY MEDICINE:

1, Veterinary Anatomy—Ballou.....	1.25
2, Animal Parasites—Kaupp.....	2.25
3, Materia Medica—Quittman.....	2.50
4, Veterinary Medicine—Winslow.....	2.25

Department of English and Public Speaking

ENGLISH:

1 a, Myths of Greece and Rome—Guerber.....	\$ 1.50
Homer's Iliad—Trans. Lang Pocket Classics.....	.25
Stevenson's Treasure Island—Lake Classics.....	.25
Shakespeare's Merchant of Venice—Arden Edition.....	.25
1 b, Mother Tongue, Book II.....	.60
Scott's Talisman—Pocket Classics.....	.25
Dickens' Tale of Two Cities.....	.25
1 c, Wooley's Handbook.....	.60
Tennyson's "Idylls of the King"—Pocket Classics.....	.25
Byron's Prisoner of Chillon—Riverside Literature Series.....	.25
2 a-b-c, English Composition in Theory and Practice—Canby and Others.....	1.25
2 a, Macaulay's Life of Johnson—Pocket Classics.....	.25
2 b, Shakespeare's King Lear and Henry IV—Arden Edition.....	.50
2 c, Browning's Selected Poems—Lake Classics.....	.40
5, The complete poems of Wordsworth, Coleridge, Byron, Shelly and Keats—Gladstone Edition.....	.50
6, Tennyson's Complete Poems—Macmillan Edition.....	.75
7, Carlyle's Heroes and Hero Worship—Athenaeum Press Series.....	.80
Ruskin's Essays and Letters, Selected—Standard English Classics.....	.60
8 a-b-c, Probably no text.	
9 a-b-c, Twelve Centuries of English Prose and Poetry—Newcomer and Andrews.....	1.75

PUBLIC SPEAKING:

1 a-b-c, Foundations of Expression—Curry.....	1.25
2, Classics for Vocal Expression—Curry.....	1.25
3, 4, No text.	

Department of German and Latin

GERMAN:

1 a-b-c, Beginner's German—Walter & Krause.....	\$ 1.00
2 b, Immensee—Storm.....	.50
2 a, German Composition—Harris.....	.50
2 a, Karl Heinrich—Meyer & Foster.....	.75
2 b, Der Zerbrochene Krug—Zschokke.....	.25
2 b, Hoher als die Kirche—Hillern.....	.35
Die Harzreise—Heine.....	.40
2 c, Wie der Deutsche Sprucht—Schiller.....	.50
3 a, Der Kampf um Rom—Felix Dahn.....	.55
3 a, Soll und Haben—Frevtag.....	.50
3 b, Populare Vortraege—Helmholtz.....	.55
3 b, Ekkehard—Scheffell.....	.55
3 c, An American in Germany.....	.50
3 c, Deutsches Liederbuch—Hohlfeld.....	.75

LATIN:

1 a-b-c, Bellum Histoeticum.....	1.00
1 a-b-c, Caesar's Gallic War.....	1.25
1 a-b-c, Latin Grammar—Bennett.....	.80
2 a-b, Cicero's Orations.....	1.25
2 a-b, Latin Composition—Daniell.....	1.00
2 c, A Term of Vergil.....	.75

Department of Mathematics

MATHEMATICS:

1 a-b, Complete Algebra—Slaught & Lennes.....	\$ 1.20
1 c, College Algebra—Reitz & Crathorne.....	1.50
2 a-b-c, Plane and Solid Geometry—Stone & Mills.....	1.30
2 a-b-c, Plane Geometry—Stone & Mills.....	.85

3, Plane and Spherical Trigonometry—Ashton & March.....	1.20
4 <i>a-b</i> , Analytic Geometry—Tanner & Allen.....	2.00
5, Elements of Astronomy—Young.....	1.60
6 <i>a-b-c</i> , Infinitesimal Calculus—Murray.....	2.00
7, Differential Equations—Murray.....	2.00

Department of Chemistry

CHEMISTRY:

1 <i>a-b-c</i> , Essentials of Chemistry—Williams.....	\$ 1.50
2, Lecture Notes—Welch.....	1.00
2, Qualitative Analysis—Irish.....	.50
5, No text.	
8 <i>a-b</i> , Quantitative Analysis—Treadway & Hull.....	4.00
Organic Chemistry—Remsen.....	1.25
10, Manual of Agricultural Chemistry—Ingle.....	2.00
12, No text.	
14, Manual of Chemical Analysis, Quantitative and Qualitative—Newth	1.75
15, Introduction to Physical Chemistry—Jones.....	1.50
Quantitative Analysis—Treadway & Hull.....	4.00
16, Outlines of Physiological Chemistry—Beebe & Buxton.....	1.50
17, Outlines of Organic Chemistry—Moore.....	1.50
Experiments in Organic Chemistry—Moore.....	.50

Department of Entomology

ENTOMOLOGY:

1, Elementary Stories in Insect Life—Hunter.....	\$ 1.25
2, 3, No text.	
4, Manual of Insect Life—Comstock.....	4.25
5, No text.	
6, Text to be adopted.	

Department of Drawing

DRAWING:

No text.

TEACHERS' NORMAL DIVISION

Department of Pedagogy, History, Political Economy and Social Science

PEDAGOGY:

1, Psychology—Angell, or any good text.....	\$ 1.50
2, History of Education—Monroe, or any good text.....	1.50
3, Any good text in Methods of School Management.....	1.00
4, Any good text in Theory and Practice of Teaching.....	1.00
5, Philosophy of Education—Horne.....	1.50
6, Any good text in Educational Psychology.....	1.50
7, High School Education—Johnston and others.....	1.50
8, High School Administration—Brown or Hollister.....	1.50
9, School Supervision—Dutton or Chancellor.....	1.50

SOCIAL SCIENCE:

1, Commercial Law—Gano.....	1.00
Economics—Seager.....	1.75
2, Outlines of Economics—Ely.....	2.00
3, Trust Problems—Jenks or Ely.....	1.00
5, Sociology—Dealey.....	1.50
6, Social Duties—Henderson; or Social Pathology—Smith.....	1.50
7, Economic History of United States—Bogart or Coman.....	1.50
8, Politics and Government—Beard; or Actual Government—Hart.....	

HISTORY:

1 <i>a</i> , Any good text.	
1 <i>b</i> , Any good text of college grade.	
1 <i>c</i> , Western Europe—Robinson.....	1.60
2, History of England—Cheney.....	1.40
3, Division and Reunion—Wilson.....	1.00
4, Oklahoma History—Evans & Bunn, or Oklahoma Government.....	.60

BUSINESS DIVISION

BUSINESS:

Bookkeeping, Modern Illustrative—Williams & Rogers.....	\$ 2.75
Spelling, Speller—P. B. S. Peters.....	.25
English, Business English—Carl Marshall.....	.85
Arithmetic, Arithmetic—Moore & Miner.....	1.00
Commercial Law, Commercial Law—Gano.....	1.00
Bookkeeping, Advanced Bookkeeping—Williams & Rogers.....	3.75
Penmanship, American Penman—A. N. Palmer.....	.50
Banking—Goodyear-Marshall.....	2.00
Farm Accounting—Goodyear-Marshall.....	1.00
Bookkeeping, Banking—Williams & Rogers.....	1.35
Business Correspondence—Campbell's, Erskine.....	.45

STENOGRAPHY:

Shorthand, Shorthand Manual—John R. Gregg.....	1.50
Shorthand Exercise Book—John R. Gregg.....	.50
Shorthand, Gregg Writer (Magazine)—John R. Gregg.....	.65
Typewriting—Vansant.....	1.00
Penmanship—American Penman—A. N. Palmer.....	.50
Spelling, Speller—P. B. S. Peters.....	.25
English, Business English—Carl Marshall.....	.85
Shorthand, Dictation Book—W. C. Eldridge.....	.65
Business Correspondence—Campbell's, Erskine.....	.45

SUB-FRESHMAN DEPARTMENT

English, English Grammar—Gowdy.....	\$.80
Ancient History—West.....	1.50
or Modern History—West.....	1.50
Algebra, First Principles of Algebra—Slaught & Lennes.....	1.20
Physiology, Advanced—Conn & Buddington.....	1.10
Spelling, Manual of Punctuation—Ashmore.....	.30
English, Elementary Composition—Scott & Denny.....	.80
English, Classics.....	.40
Arithmetic, Advanced—Lyman.....	.75
Etymology, Study of English Words—Anderson.....	.40
History of Western Europe—Robinson.....	1.60
English, Classics and Theme Paper (estimated).....	1.00
The Academic Orthoepist.....	.15

MILITARY DEPARTMENT

MILITARY SCIENCE:

Infantry Drill Regulations, 1911.

ALUMNI

ORGANIZATION FOR 1912-13

C. P. BLACKWELL, '11, Okmulgee, Oklahoma.....	<i>President</i>
J. GUY FISHER, '10, Andrews, N. C.....	<i>First Vice President</i>
CHARLES E. HOKE, '07, Oklahoma City, Oklahoma	
.	<i>Second Vice President</i>
P. E. MEANS, '08, Hurley, N. M.....	<i>Third Vice President</i>
C. H. McELROY, '06, Stillwater, Oklahoma.....	<i>Secretary</i>
E. C. GALLAGHER, '09, Stillwater, Oklahoma.....	<i>Treasurer</i>

The following is a list of the graduates of the College by classes, and in each case the address and occupation is given as correctly as the Secretary's records show. It is especially desired that all graduates advise the Secretary of changes of address and occupation :

1896

Adams, Arthur W., Real Estate Agent.....	Ardmore, Oklahoma
Adams, J. Homer, Real Estate Agent.....	Ardmore, Oklahoma
Duck, Frank E., Farmer.....	Stillwater, Oklahoma
Jarrell, A. Edward, Santa Fe System.....	Pueblo, Colorado
Lewis, E. G., Banker.....	Tulsa, Oklahoma
Morris, Oscar M., Professor of Horticulture, A. & M. College.....	Pullman, Washington

1897

Bowers, George W., Railway Conductor.....	Enid, Oklahoma
Caudell, Andrew N., Entomologist, U. S. Dept. of Agriculture.....	Washington, D. C.
(Thatcher) Bost, Jessie O., at Home.....	Alva, Oklahoma

1898

Clark, John T., Treasurer of Mindanao Province.....	Cagayon, Philippine Islands
Ford, Augustus G., Real Estate Agent.....	Muskogee, Oklahoma
Gilbert, N. T., Banker.....	Bristow, Oklahoma
Hartman, T. J., Banker.....	Tulsa, Oklahoma
Morris, Clinton, Iron Foundry Chemist.....	Goodrich, Tennessee
(Swope) Dolde, Emma H., at Home.....	Leavenworth, Kansas
(Wise) Diggs, Blanche, at Home.....	Stillwater, Oklahoma

1899

Bullock, Noah P., Teacher.....	Stillwater, Oklahoma
Donart, Clarence R., Bank Cashier.....	Altus, Oklahoma
(Dysart) Teter, Minnie A., at Home.....	Bristow, Oklahoma
Greiner, Francis M., Chemist, Iron Works.....	Ensley, Alabama
McReynolds, Arthur, Publisher and Editor.....	King City, California
Miltimore, Cora A., Librarian A. & M. College.....	Stillwater, Oklahoma
Myers, S. Earl, Real Estate Agent.....	Guthrie, Oklahoma
*Regnier, Chas. E.....	Stillwater, Oklahoma

*Deceased

1900

Anderson, A. W., Lawyer.....	Woodward, Oklahoma
(Donart) Coffey, Cora M., at Home.....	Lawton, Oklahoma
Goff, Thomas T., Instructor in Gem City Business College.....	Quincy, Illinois
Malone, John S., County Farm Adviser, Cherokee County.....	Tahlequah, Oklahoma
*Miller, Louis C.....	Denver, Colorado
Stiles, Geo. W., Bureau of Chemistry, Department of Agriculture.....	Washington, D. C.

1901

Hurst, B. Bradford, Hospital Steward, U. S. Navy.....	Sitka, Alaska
Jewett, Kate A., Principal High School.....	Udall, Kansas
Kezer, Charles L., Superintendent of City Schools.....	Stillwater, Oklahoma
Lewis, Arthur C., Assistant State Entomologist.....	Atlanta, Georgia
(Walker) Swinford, Velma, at Home.....	Stillwater, Oklahoma

1902

Anderson, A. Bondy, Chief Inspector Motive Power Department, Santa Fe Railway System.....	Topeka, Kansas
Carson, Sarah S., Hardware Business.....	Perkins, Oklahoma
Flower, A. Warren, Railway Service.....	Deer Creek, Montana
Hunt, Gertrude, Instructor in High School.....	Santiago, California
Janeway, George M., Cashier Bank of Skiatook.....	Skiatook, Oklahoma
Jones, Charles V., Lawyer.....	Clay Center, Kansas
Kratka, Ralph.....	Rocky Ford, Colorado
Lowry, Chester H., Lawyer.....	Stillwater, Oklahoma
McReynolds, Samuel A., Student.....	Italy
Otey, Monroe J., Banker.....	Frankfort, Oklahoma
Pigg, Howard F., Electrical Engineer, Witherbee, Sherman & Co.....	Mineville, New York
Rector, Frank L. (M. D., George Washington University), Bacteriologist Great Bear Springs Co.....	Brooklyn, New York
Shively, R. Rex, Professor of Chemistry, Pittsburg University.....	Pittsburg, Pennsylvania
Smeltzer, Charles E., Student, Rush Medical College.....	Chicago, Illinois
Thornberry, Wallace T., Building Contractor.....	Kansas City, Missouri
Walker, Belle, Stenographer.....	Shawnee, Oklahoma
Walker, Ethel, at Home.....	Iowa
Woodson, M. M., Superintendent Secondary Agricultural School.....	Helena, Oklahoma

1903

Brown, John J., Erecting Engineer for Westinghouse Electric Co.....	Chicago, Illinois
Gulick, Horace S., Chief Chemist, American Steel Foundries.....	East St. Louis, Illinois
Hoover, George W., Assistant in Bureau of Chemistry.....	Washington, D. C.
House, R. Morton, Dealer in Farm Implements.....	Bristow, Oklahoma
Houston, Mamie G., High School Instructor.....	Albany, Oregon
(Hurst) Suits, Nina B., at Home.....	Beeville, Texas
(Jarrel) Hartman, Mary, at Home.....	Tulsa, Oklahoma
Kenyon, Ransom S., Electrician for New Orleans St. Ry. Co.....	New Orleans, Louisiana
Kerr, Robert H., Chemist, Department of Agriculture.....	Washington, D. C.
Kinder, William E., Professor of Mathematics and English, Connell State School of Agriculture.....	Helena, Oklahoma
Lincoln, Henry J., Santa Fe Railway Employee.....	Chicago, Illinois
McBride, Henry F., Superintendent Guanajuato Power & Electric Co.....	Guanajuato, Mexico
Miller, Maud I., at Home.....	Beeville, Texas
*Morrow, Charles E.....	Stillwater, Oklahoma
(Morrow) Watkins, Jessie E., at Home.....	North Enid, Oklahoma
Nelson, Cyrus W., Druggist.....	Washington, D. C.
(Nelson) Chandler, Lila E., Pharmacist.....	Washington, D. C.
Nelson, Stella C., Druggist.....	Washington, D. C.
(Nielson) Taylor, Mary A., at Home.....	Perry, Oklahoma
North, Esther A., at Home.....	Geary, Oklahoma
Robinson, Abbott G., Assayer.....	Tecopa, California
Ruble, Bertha M., Professor of Domestic Science, Ada Normal School.....	Ada, Oklahoma
Walker, Florence K., Stenographer.....	Oklahoma City, Oklahoma

1904

Bowers, Renzo D., Lawyer.....	Roswell, New Mexico
Chandler, Frederick R., Assistant Master Mechanic, Bethlehem Steel Co.....	South Bethlehem, Pennsylvania
Durham, Samuel B., Professor Animal Husbandry, Agricultural College.....	Los Banos, La Laguna, Philippine Islands
Gilbert, J. Carlton, Professor in Government Schools.....	Shanghai, China
*Deceased	

Guyann, Porter N., Inspector, Civil Engineering Department, Illinois Steel Co.	Brooklyn, New York
Hamblin, Clyde M., Electrical Expert at Navy Yard	Washington, D. C.
Jones, Edward L., Manager, Columbus Electric Car Co.	San Francisco, California
Kidd, John W.	Elephant Butte, New Mexico
Lovett, Amos E., Special Agent, Farmers' Cooperative Demonstration Work	
Marple, Vern, Bank Cashier	Chcctah, Oklahoma
McBride, John F., Guanajuato Power & Electric Co.	Meade, Oklahoma
Morgan, Bernice, at Home	Guanajuato, Mexico
Stevens, Harry I., Jr., Chemist, St. Louis Surfacor & Paint Co.	Stillwater, Oklahoma
Tarr, Wm. A., Instructor in Economic Geology, University of Missouri	St. Louis, Missouri
Thornberry, Joseph W., Buttermaker, Townsend Creamery	Columbia, Missouri
(Thoroughman) Williams, Maude E., at Home	Astoria, Oregon
Walker, Fay B., at Home	Perkins, Oklahoma
Wikle, George F., Master Mechanic and Electrical Engineer for the Honolulu Rapid Transit and Land Co.	Oklahoma City, Oklahoma
Withers, Alpheus C., Dentist	Honolulu, Territory of Hawaii
	Glencoe, Oklahoma

1905

Ball, Hermond L., President The John Dietz Mfg. Co.	Cincinnati, Ohio
Bilyeu, Robert I., Ward Principal	Enid, Oklahoma
Blue, Frank R., Farmer	Cushing, Oklahoma
Broom, Rose E., Teacher	Perkins, Oklahoma
Burlison, Wm. L., Graduate Student University of Illinois	Urbana, Illinois
*Burnett, Roy E.	Stillwater, Oklahoma
Comstock, Harry, Assistant General Manager, Witherbee, Sherman & Co.	
English, W. L., Agricultural Commissioner, Frisco Railway	Mineville, New York
Hartenbower, Andrew C., Assistant Professor of Agronomy, A. & M. College	St. Louis, Missouri
Hastings, Alice A., Teacher	Stillwater, Oklahoma
Hines, G. Ernst, Supervising Engineer, Burns & McDonnell	Anadarko, Oklahoma
Johnstone, John C., Teacher	Kansas City, Missouri
Knauss, Elmer J., Drug Clerk	Lawton, Oklahoma
Lewis, Carrie E., Teacher City Schools	Kansas City, Missouri
(Tankersley) McAninch, Lola, M., at Home	Stillwater, Oklahoma
Nelson, John A., Lawyer	Edmond, Oklahoma
Rush, Walter S., President Rush Marine Signal Co.	Washington, D. C.
Spalding, John A., Farmer	New York, N. Y.
Wiley, Raymond C., Assistant Station Chemist, Kansas A. & M. College	North Enid, Oklahoma
Woodworth, J. Earl, U. S. Department of Agriculture	Manhattan, Kansas
	Guthrie, Oklahoma

1906

Atkinson, Mary B., High School Instructor	Bartlesville, Oklahoma
(Braden) Robinson, Gertrude, at Home	Lawton, Oklahoma
Brown, Charles W., Assistant Bacteriologist, Experiment Station	
Chandler, Emma, Professor Domestic Science, Agricultural School	Agricultural College, Michigan
Clark, Arthur C., General Electric Co.	Monticello, Arkansas
Eberle, Dovie, Graduate Student, Columbia University	Minneapolis, Minnesota
Howell, Carl E., Assistant Mechanical and Electrical Engineer, Pacific Light & Power Co.	New York, N. Y.
(Lowry) McKee, Theo. M., at Home	Los Angeles, California
McElroy, Clarence H., Assistant in Veterinary Science, A. & M. College	Muskogee, Oklahoma
Miller, Bertha, at Home	Stillwater, Oklahoma
Olentine, Fred B., Student, Rush Medical College	Beeville, Texas
Osborn, John, U. S. War Department	Chicago, Illinois
(Semke) Harrington, Grace E., at Home	Fort Stevens, Oregon
*Smith, Stewart G.	Covington, Oklahoma
Wilson, James, Assistant in Bacteriology, Experiment Station	Stillwater, Oklahoma
Walker, Veda R., Instructor High School	Geneva, New York
	Los Angeles, California

1907

(Bras) Owens, Ruth, at Home	Fort Lauderdale, Florida
Carson, Rose L., Hardware Business	Perkins, Oklahoma
Chester, Bertha M., Teacher City Schools	Stillwater, Oklahoma
Dougan, Elmer E., General Electric Co.	Pittsfield, Massachusetts
(English) Lantz, Maude M., at Home	Willows, California

*Deceased.

Hancock, Avery V., Manager of Oklahoma Office, General Electric Co.	Oklahoma City, Oklahoma
Hoke, Chas. E., In Charge of Farm Management Investigations in Oklahoma for U. S. Department of Agriculture.	Oklahoma City, Oklahoma
Hoke, Harry G., Salesman, Westinghouse Electric Co.	Wilkinsburg, Pennsylvania
Lantz, Arthur G., Farmer.	Willows, California
Lantz, Calvin R., Westinghouse Electric & Manufacturing Co.	Seattle, Washington
(Morrison) Berry, Edwina, at Home.	Stillwater, Oklahoma
Newcomb, Bonnie, Teacher.	Orin, Washington
(Oschman) Ross, Hattie, at Home.	Claremore, Oklahoma
Ratcliff, J. Anderson, University of Nebraska.	Lincoln, Nebraska
Reeve, Charles T., General Electric Co.	Oklahoma City, Oklahoma
Reeve, Henry W., Farmer.	Choctaw, Oklahoma
Taylor, Jeannette L., Professor of Domestic Science, Connell State School of Agriculture.	Helena, Oklahoma
Wiard, Pearl L., Stenographer.	Oklahoma City, Oklahoma

1908

Anderson, Rex E., Collection Agency.	Los Angeles, California
Baird, Robert O., Assistant Station Chemist, A. & M. College.	Stillwater, Oklahoma
Bennett, Paul, Plumber.	Stillwater, Oklahoma
Boley, Albert L., Engineer.	Fairview, Oklahoma
Clark, Frank J., Circulation Manager, Oklahoma Farm Journal.	Oklahoma City, Oklahoma
Cole, Frank, Farmer.	Pawnee, Oklahoma
Francis, Victor, Superintendent Construction Power Plant.	Wagoner, Oklahoma
Gager, Ernest H., Commonwealth-Edison Electric Co.	Chicago, Illinois
Hamon, Fannie, at Home.	Fort Lauderdale, Florida
Holmes, Lynn D., Physical Director, University Preparatory School.	Tonkawa, Oklahoma
Holmes, O. Wendell, Agriculturist, County High School.	Grand Rapids, Minnesota
Janeway, Lenore R., Instructor High School.	Ardmore, Oklahoma
Letteer, Clarence R., Manager U. S. Experiment Farm.	San Antonio, Texas
Lovett, A. Lester., Assistant Entomologist, Oregon State College.	Corvallis, Oregon
McCall, James G., Agriculturist, Secondary Agricultural School.	Helena, Oklahoma
Means, Pliny E., Engineer.	Hurley, New Mexico
Moore, A. L., Instructor High School.	Medford, Oklahoma
Moore, Raymond H., Real Estate and Loans.	Stillwater, Oklahoma
Peck, Oliver T., Book Business.	Stillwater, Oklahoma
(Stover) Gougler, Ida M., at Home.	New Orleans, Louisiana
Wood, Clarence A., Farmer.	Perry, Oklahoma

1909

Bentley, Maurice R., Farmer.	Charley, Texas
Blue, True C., Bagnall & Hilles.	Yokohama, Japan
Boutin, Harry C., Chief Operator, Commonwealth-Edison Electric Co.	Chicago, Illinois
(Bradwell) Newby, Ollie, at Home.	Mulhall, Oklahoma
Bullen, Clarence K., Lumber Business.	Perry, Oklahoma
Burke, Markus P., Civil Engineer.	Salt Lake City, Utah
(Caton) Younger, Orpha M., at Home.	Warner, Oklahoma
Cloukey, Homer U., Assistant Chemist, Morris Packing Plant.	Oklahoma City, Oklahoma
Crawford, Charles W., Farmer.	Apache, Oklahoma
Geesch, Glenn M., Pipe Line Co.	Tulsa, Oklahoma
Gallagher, Edward C., Assistant Physical Director, A. & M. College.	Stillwater, Oklahoma
Gougler, Frank A., Director Southern Agricultural College and Experiment Station.	New Orleans, Louisiana
Hancock, Joy B., Professor of Domestic Science, Oklahoma Industrial Institute.	Chickasha, Oklahoma
Hemphill, Ora L., at Home.	Stillwater, Oklahoma
Ives, Fred H., Agriculturist, Central State Normal School.	Edmond, Oklahoma
Johnson, Norma N., Bookkeeper.	Stillwater, Oklahoma
Kilpatrick, Cecil, at Home.	Stillwater, Oklahoma
Lahman, Wilbur, Ice and Coal Business.	Pawnee, Oklahoma
Lindsey, Ray V.	Kingfisher, Oklahoma
McMullin, Samuel I.	Manchester, Oklahoma
Needham, Ollie, Westinghouse Electric & Manufacturing Co.	Pittsburg, Pennsylvania
Mitchell, Lloyd C., Chemist, U. S. Department of Agriculture.	Washington, D. C.
Springer, Mamie, at Home.	Cushing, Oklahoma
Stebbins, Albert A., Farmer.	Garber, Oklahoma
Stebbins, Robert R., Farmer.	Enid, Oklahoma
Stewart, Forest L., Texas Pipe Line Co.	Tulsa, Oklahoma
Stover, Nannie, Teacher in City Schools.	Cushing, Oklahoma
Tate, J. Arnold, Instructor in University of Wisconsin.	Madison, Wisconsin
Tillotson, Bonnie R., at Home.	Capitol Hill, Oklahoma

Treeman, Herbert L., Western Electric Co.	Chicago, Illinois
Wise, Mabelle L., at Home	Stillwater, Oklahoma

1910

Allen, H. S., Civil Engineer	Joplin, Missouri
Baade, H. J., High School Instructor	Big Timber, Montana
Camp, W. E., General Electric Co.	Schenectady, New York
Clausen, Roy E., Graduate Student	Berkeley, California
Faulds, N. M.	Enid, Oklahoma
Fisher, J. Guy, Engineer, Union Development Co.	Andrews, North Carolina
Funda, Fred P., Chief Draftsman, Rock Island Railroad Co.	El Reno, Oklahoma
Gammie, Robert J., Civil Engineer	Texarkana, Texas
Gollehon, Floyd, at Home	Stillwater, Oklahoma
Hager, Hyral, Stenographer, A. & M. College	Stillwater, Oklahoma
Hamilton, J. Homer, Student Harvard Medical College	Cambridge, Massachusetts
Hamilton, F. C., at Home	Mulhall, Oklahoma
Hamon, Chester A., Westinghouse Electric & Manufacturing Co.	Wilkesburg, Pennsylvania
Hilderbrand, Lee E., Student University of Missouri	Columbia, Missouri
Hubler, Willis A., Farmer	Fairfax, Oklahoma
Jones, C. Shelly, Allis-Chalmers Co.	Norwood, Ohio
Kenyon, R. E., General Electric Co.	West Lynn, Massachusetts
(Kilpatrick) Anderson, V. Victoria, at Home	Guymon, Oklahoma
King, Beverly, D., Norris Engineering Co.	Wharton and El Campo, Texas
Kooken, E. Ralph, Instructor in Agriculture, Bonham High School	Bonham, Texas
(Lewis) Johnson, Myrtle I., at Home	Fargo, North Dakota
McBride, Iva, Professor of Domestic Science, High School	Douglas, Arizona
Moote, Truman P., Engineer	El Campo, Texas
Neuman, Leo M., Graduate Student, University of Missouri	Columbia, Missouri
Oursler, Archie C., Alta Vista Creamery Co.	Fort Worth, Texas
Pochel, Roy A., Instructor in Civil Engineering, Purdue University	West Lafayette, Indiana
Ritter, Lawellyn B., Assistant in Veterinary Science, A. & M. College	Stillwater, Oklahoma
(Rogers) Faulds, Almira, at Home	Enid, Oklahoma
Ross, James K., Hardware Business	Madill, Oklahoma
Selement, Frank J., Oklahoma Street Railway Co.	Oklahoma City, Oklahoma
Shaw, Anna M., Graduate Student University of Oklahoma	Norman, Oklahoma
Smith, C. Ray, Real Estate and Loan Business	Stillwater, Oklahoma
Spaulding, Harry B., High School Instructor	Huron, South Dakota
Spidel, John M., Graduate Student	Corvallis, Oregon
Spohn, Ralph E., Commonwealth-Edison Electric Co.	Chicago, Illinois
Straub, Otto T., Agriculturist, Panhandle Agricultural Institute	Goodwell, Oklahoma
Talbot, Nora A., Teacher, City Schools	Nowata, Oklahoma
Tibbetts, Frank J.	El Paso, Texas
Vezev, Earl E., Instructor, Connell State School of Agriculture	Helena, Oklahoma
Walters, Marguerite P., Professor of Domestic Science, Panhandle Agricultural Institute	Goodwell, Oklahoma
Watrous, Robert C., Jewelry Business	Broken Arrow, Oklahoma
Williams, Guy P., Commonwealth-Edison Electric Co.	Chicago, Illinois
Wills, Doris, Westinghouse Electric & Manufacturing Co.	Pittsburg, Pennsylvania
Wilson, Harry E., A. T. & S. F. Ry. Co.	Winfield, Kansas
Worthington, Wayne H., J. I. Case Threshing Machine Co.	Odesa, Russia
Walters, Minnie D., Professor of Domestic Science, Haskell State School of Agriculture	Broken Arrow, Oklahoma
Woodworth, Clyde M., Bureau of Plant Industry	Washington, D. C.

1911

Aikins, Evelyn M., Instructor in Domestic Science and Arts	Carrington, North Dakota
Blackwell, C. P., Superintendent High School	Oklmulgee, Oklahoma
Breuer, Erreich H., Rock Island Railway	Jacksboro, Texas
Burke, William J., Commonwealth-Edison Electric Co.	Chicago, Illinois
Carter, William C., Westinghouse Electric & Manufacturing Co.	Pittsburg, Pennsylvania
Casali, Louise, Professor of Domestic Science, University Preparatory School	Tonkawa, Oklahoma
Chivington, Anna L., Assistant in Domestic Science, Haskell State School of Agriculture	Broken Arrow, Oklahoma
Davis, R. N., Operating Creamery	Salmon, Idaho
Dorman, Will S., Civil Engineer	Phoenix, Arizona
Frier, Clarence H., General Electric Co.	Schenectady, New York
Gaylon, Edgar C., Westinghouse Electric & Manufacturing Co.	Pittsburg, Pennsylvania
Gardner, Frank, Civil Engineer for Central States Bridge Co.	Purcell, Oklahoma
Hall, Roy V., Civil Engineer	Jonesboro, Arkansas
Hamon, Robert J., Bureau of Plant Industry, U. S. Department of Agriculture	Washington, D. C.

Harvey, Carl E., Dawson, Kedian & Valeur.....	Muskogee, Oklahoma
Hiet, Melvin E., Engineer, Post & McCord.....	New York, N. Y.
Hoke, Geo. A., Operator, Santa Fe Railway Co.....	Guthrie, Oklahoma
Hopps, Carl W., General Electric Co.....	Schenectady, New York
Jesse, Walter B., Department of Animal Husbandry.....	Washington, D. C.
Kilpatrick, Katie C., Teacher High School.....	Pond Creek, Oklahoma
Leicht, Harry S., U. S. Geological Survey.....	Soledad, California
McArthur, C. L., Assistant Bacteriologist, University of Idaho.....	Moscow, Idaho
McBride, J. D., Clerk.....	Stillwater, Oklahoma
McIntyre, Jesse C., Commandant of Cadets, University Preparatory School.....	Tonkawa, Oklahoma
McKay, M. Bert, Scientific Assistant, U. S. Department of Agriculture.....	Rocky Ford, Colorado
Mayall, Samuel J., Construction Department Pacific Telephone & Telegraph Co.....	Los Angeles, California
Moore, J. Allen, Western Milling Co.....	Kansas City, Missouri
Moskedol, Olga, Instructor in Domestic Science, Murray State School of Agriculture.....	Tishomingo, Oklahoma
Reed, Fred, Oklahoma Gas & Electric Co.....	Oklahoma City, Oklahoma
Ross, Sam I., Instructor in Manual Training, Colorado A. & M. College.....	Fort Collins, Colorado
Schnurr, Cornelius, U. S. Geological Survey.....	Phoenix, Arizona
Shiffett, Roger C., Instructor in Agriculture, Colquit High School.....	Colquit, Minnesota
Smith, Joe G., Real Estate Business.....	Dallas, Texas
Stewart, Annabel, High School Instructor.....	Stillwater, Oklahoma
Regner, Miles A., Instructor University Preparatory School.....	Tonkawa, Oklahoma
Truex, Clyde P., Commonwealth-Edison Co.....	Chicago, Illinois
Watson, Dallas H., U. S. Geological Survey.....	Phoenix, Arizona
Wikle, Hugh H., General Electric Co.....	Schenectady, New York
Wilson, Clay E., Teacher.....	Kenton, Oklahoma
Winters, N. E., Farm Superintendent.....	Houston, Texas

1912

Akagi, Y., Agriculturist.....	Bingo, Japan
Bartlett, E. C., Real Estate Business.....	Mannford, Oklahoma
Bartlett, E. E., Real Estate Business.....	Mannford, Oklahoma
Buchanan, W. A., Professor of Agriculture, Secondary Agricultural School.....	Broken Arrow, Oklahoma
Buffington, Betha, Graduate Student Oklahoma A. & M. College.....	Stillwater, Oklahoma
Bullen, B. C., Assistant Bacteriologist, Great Bear Waterworks.....	Brooklyn, New York
Clausen, B. O., Franklin Mfg. Co.....	Syracuse, New York
Clawson, Mrs. B. J., at Home.....	Lawrence, Kansas
Comstock, F., General Electric Co.....	Schenectady, New York
Connell, W. B., Graduate Student Oklahoma A. & M. College.....	Stillwater, Oklahoma
Cook, H. P., Instructor, Logan County High School.....	Guthrie, Oklahoma
Correll, V. I., Instructor High School.....	Cleveland, Oklahoma
Crocker, Fred, Assistant City Bacteriologist.....	Birmingham, Alabama
Dolde, William E., Graduate Student, Agricultural College.....	Corvallis, Oregon
Duck, T. W., Santa Fe Railway Co.....	Topeka, Kansas
Evans, A. Ray, Assistant Agronomist, University of Missouri.....	Columbia, Missouri
Frensch, H. H., Civil Engineer.....	McGehee, Arkansas
Frieday, Almira, Instructor of Domestic Science.....	Crossett, Arkansas
Gaudian, W., Commonwealth-Edison Co.....	Chicago, Illinois
Goom, Austin, Banker.....	Ripley, Oklahoma
Gray, William F., Farm Adviser.....	Lemmon, North Dakota
Gregory, H. W., Dairyman.....	Brookings, South Dakota
Hahn, P. R., Commonwealth-Edison Co.....	Chicago, Illinois
Hartshorne, Eugene, Commonwealth-Edison Co.....	Chicago, Illinois
Herrick, H. C., Western Electric Co.....	Chicago, Illinois
Hobbs, Hugh, Missouri Pacific Railway Co.....	Little Rock, Arkansas
Hill, Vera M., Instructor High School.....	Cleveland, Oklahoma
Hoke, Mac, Teacher of Science.....	Idaho Falls, Idaho
Jeffords, Sherman, County Farm Adviser.....	Pryor, Oklahoma
(Johnson) Crosley, Lucy, Glendale Farm.....	Loveland, Ohio
Johnson, Stephen B., Agriculturist, State College.....	Fargo, North Dakota
Kilpatrick, Earl, Instructor in Agriculture.....	Long Prairie, Minnesota
Knoblock, F. L., Architectural Engineer.....	Beaumont, Texas
Lowman, E. F., Instructor Indian School.....	Mekusky, Oklahoma
Lynch, H. W., Westinghouse Electric Co.....	Pittsburg, Pennsylvania
McCaslin, M. W., Westinghouse Electric Co.....	Pittsburg, Pennsylvania
McPheeters, A. A., Farm Adviser.....	Two Harbors, Minnesota
McPheeters, Margaret, Assistant in Domestic Science, Secondary School of Agriculture.....	Helena, Oklahoma
Meredith, C. S., Agriculturist, Secondary School of Agriculture.....	Warner, Oklahoma
Nellis, H. W., Commonwealth-Edison Co.....	Chicago, Illinois

Neuman, Iva F., Professor of Domestic Science, Secondary School of Agriculture	Warner, Oklahoma
Newland, Mrs. Minnie, Teacher	Oregon
North, Kate, Professor of Domestic Science, High School	Okemah, Oklahoma
Potts, Frank M., Farmer	Dexter, Michigan
Priest, Stella, Instructor City Schools	Okemah, Oklahoma
Painter, Ray H., Graduate Student, Oklahoma A. & M. College	Stillwater, Oklahoma
Payne, L. F., Assistant Animal Husbandry, A. & M. College	Stillwater, Oklahoma
Richards, Hattie, Instructor High School	Brigham City, Utah
Shallenberger, Garvin, Instructor High School	Okemah, Oklahoma
Shiflett, H. D., Farmer	Cruce, Oklahoma
Talbot, A. E., Physical Director High School	Nowata, Oklahoma
Tillotson, A. K., Good Roads Chemistry Laboratory	Washington, D. C.
Tongue, George F., Assistant Engineer, Street Railway Co.	Dallas, Texas
Vandervoort, L. A., Westinghouse Electric Co.	Pittsburg, Pennsylvania
Webb, A. E., Instructor in Agriculture	Truman, Minnesota
Wirfs, Clair, Professor of Domestic Science, High School	Talequah, Oklahoma
Wright, Louise, Graduate Student, Oklahoma A. & M. College	Stillwater, Oklahoma

ROLL OF STUDENTS

Seniors

Adams, Myrtle C.	Domestic Science and Arts	Tishomingo
Bloom, Charlie H.	Engineering	Jennings
Bonar, H. T.	Engineering	Stillwater
Bowers, Charles	Agricultural	Stillwater
Brown, C. B.	Agricultural	Spearmore
Burke, Elizabeth	Domestic Science and Arts	Stillwater
Campbell, Viola	Domestic Science and Arts	Guthrie
Cobb, A. L.	Engineering	Eddy
Cobb, Mary I.	Domestic Science and Arts	Wagoner
Cox, Mary E.	Domestic Science and Arts	Stillwater
Eads, Velma	Domestic Science and Arts	Stillwater
Fansher, Ted	Agricultural	Edmond
Ford, William Walter	Engineering	Stillwater
Forrester, Dick	Agricultural	Stratford
Gilmer, T. P.	Engineering	Oklahoma City
Goltry, H. U.	Science and Literature	Erid
Gravelle, Edmund E.	Engineering	Olustee
Hamilton, Fearn	Science and Literature	Stillwater
Harnden, F. D.	Teachers' Normal	Stillwater
Harrison, L. D.	Science and Literature	Oklahoma City
Hart, Haden B.	Agricultural	Mangum
Harvey, J. W.	Engineering	Stillwater
Hedger, H. R.	Agricultural	Hooker
Herron, Leonard G.	Agricultural	Waterloo, Illinois
Hufnagel, Chas.	Agricultural	Okarche
Jacob, A. W.	Agricultural	Stillwater
Jacob, L. O.	Agricultural	Stillwater
James, Helen	Domestic Science and Arts	Stillwater
Janeway, Helen	Domestic Science and Arts	Stillwater
Johnson, Laura Wright	Teachers' Normal	Ada
Krall, John A.	Agriculture	Stillwater
Losey, Portia M.	Domestic Science and Arts	Stillwater
Lowry, Ethel E.	Domestic Science and Arts	Stillwater
McIlvain, Chas.	Agricultural	Ponder, Texas
McPheeters, Martha	Domestic Science and Arts	Stillwater
Marsh, Venus Lee	Science and Literature	Stillwater
Melton, W. A.	Engineering	Stillwater
Merrifield, Fred R.	Agricultural	Enid
Merrill, Arthur J.	Engineering	Stillwater
Merry, George	Science and Literature	Stillwater
Mitschrich, M. F.	Engineering	Lawton
O'Brien, G. E.	Agricultural	Union, Ohio
Pearson, Thirza	Domestic Science and Arts	Yale
Reid, Grace	Domestic Science and Arts	Muskogee
Rhodes, T. W.	Engineering	St. Petersburg, Florida
Rock, Thos. C.	Agricultural	Woodville, Texas
Ryno, Madeline	Domestic Science and Arts	Stillwater
Santee, L. A.	Engineering	Goltry
Schreiber, S. E.	Agricultural	Stillwater

Scott, E. M.	Engineering	Stillwater
Seeger, Ernest C.	Agricultural	Billings
Short, Robt.	Agricultural	Sulphur
Sieglinger, John	Agricultural	Lone Wolf
Smith, R. R.	Science and Literature	Chickasha
Snyder, Georgia	Domestic Science and Arts	Glencoe
Swope, Harold M.	Engineering	Stillwater
Thompson, Eugene R.	Agricultural	Tishomingo
Trent, Dover	Science and Literature	Stigler
Utt, O. G.	Engineering	El Reno
Walker, K. D.	Agricultural	Stillwater
Walters, Julia	Domestic Science and Arts	Stillwater
Watson, Florence	Teachers' Normal	Stillwater
Watson, W. E.	Agricultural	Stillwater
Watson, W. P.	Engineering	Oklahoma City
Weaver, G. E.	Agricultural	Stillwater
Wells, Edmund E.	Engineering	Kingfisher
White, H. H.	Engineering	Oklahoma City
Whiteside, Arthur	Agricultural	Coalgate
Williams, Roger L.	Agricultural	Stillwater
Wright, Nathan W.	Teachers' Normal	Stillwater

Juniors

Albert, Harold R.	Science and Literature	Stillwater
Allen, Floyd	Agricultural	Stillwater
Anderson, A. A.	Engineering	Enid
Baker, DeLarue	Science and Literature	Mannford
Barnes, H. Dale	Agricultural	Banner
Bellis, Ida O.	Teachers' Normal	Stillwater
Brannin, Louise	Agricultural	Dallas, Texas
Brodell, A. C.	Teachers' Normal	Keystone
Broich, Walter F.	Agricultural	Stillwater
Brooke, Hazel	Science and Literature	Perkins
Brown, O. C.	Engineering	Oklmulgee
Campbell, M. B.	Agricultural	Minco
Campbell, Rhea	Domestic Science and Arts	Guthrie
Carney, Zora	Domestic Science and Arts	Stillwater
Chilcote, Pearl	Domestic Science and Arts	Stillwater
Chivington, Maybelle	Teachers' Normal	Stillwater
Clark, Joe	Engineering	Chelsea
Clausen, Nellie	Domestic Science and Arts	Stillwater
Conklin, H. E.	Engineering	Chandler
Conner, W. A.	Agricultural	Stillwater
Corkill, Wm. Edw.	Science and Literature	Cushing
Curnutt, Minnie	Domestic Science and Arts	Broken Arrow
Dale, Ernest Brock	Engineering	Headrick
DeBord, Geo. G.	Science and Literature	Stillwater
Donart, Gladys	Domestic Science and Arts	Stillwater
Drummond, Frederick	Science and Literature	Hominy
Durham, Pearl	Domestic Science and Arts	Stillwater
Ent, Morton	Agricultural	Helena
Epperson, J. H.	Science and Literature	Apache
Foster, Nellie	Agricultural	Stillwater
Friedemann, Wm. G.	Science and Literature	Stillwater
Getgey, John	Science and Literature	Helena
Goddard, Nettie	Domestic Science and Arts	Broken Arrow
Graham, Douglas S.	Science and Literature	Swink
Graham, Quentin	Engineering	Swink
Granberry, C. E.	Teachers' Normal	Lake
Gray, Helen	Domestic Science and Arts	Stillwater
Hagar, W. Edgar	Agricultural	Stillwater
Heck, Orleva	Domestic Science and Arts	Helena
Herndon, May	Domestic Science and Arts	Garvin
Hetrick, Hazel	Domestic Science and Arts	Helena
Hiet, Sadie	Domestic Science and Arts	Stillwater
Hoke, Rhoda	Domestic Science and Arts	Quay

Holford, Ina C.....	Teachers' Normal.....	Madill
Holloman, Gertrude.....	Domestic Science and Arts.....	Stillwater
Holton, Pauline.....	Domestic Science and Arts.....	Helena
Horton, Charlotte.....	Science and Literature.....	Mekuskey
Huddleson, I. F.....	Engineering.....	Kremlin
Huffman, Lewis D.....	Science and Literature.....	Vanduser, Missouri
Hunt, Ruth.....	Domestic Science and Arts.....	Stillwater
Jackson, W. E.....	Agricultural.....	Coweta
Jeffords, Mary E.....	Domestic Science and Arts.....	Oklahoma City
Jones, Daisy L.....	Domestic Science and Arts.....	Stillwater
Jones, Eva.....	Science and Literature.....	Stillwater
Jones, Jeanne H.....	Domestic Science and Arts.....	Stillwater
Jordan, Chas. N.....	Teachers' Normal.....	Meridian, Mississipp
Keiffer, Cora Fay.....	Domestic Science and Arts.....	Helena
Kilpatrick, May.....	Domestic Science and Arts.....	Hunter
Kolshorn, Agnes.....	Science and Literature.....	Redwing, Minnesota
Krepps, Saml.....	Engineering.....	Oklahoma City
Lambert, H. E.....	Engineering.....	Sumner
Lane, F. P.....	Agricultural.....	Burlington, Kansas
McClure, Marguerite S.....	Science and Literature.....	North McAlester
McLelland, Mathilde.....	Teachers' Normal.....	Stillwater
McLelland, Wm.....	Agricultural.....	Stillwater
McRoberts, Velma.....	Domestic Science and Arts.....	Mulhall
Mantle, David LeRoy.....	Engineering.....	Adair
Marker, Walter.....	Agricultural.....	Stillwater
Miller, Esther.....	Domestic Science and Arts.....	Stillwater
Miller, Hilma.....	Domestic Science and Arts.....	Stillwater
Morrow, Bertha.....	Domestic Science and Arts.....	Broken Arrow
Morrow, Ella M.....	Domestic Science and Arts.....	Perkins
Neumann, Eleanor.....	Science and Literature.....	Stillwater
Oursler, Anna L.....	Science and Literature.....	Stillwater
Overstreet, Maggie.....	Domestic Science and Arts.....	Cowlington
Owen, E. M.....	Engineering.....	Cushing
Peck, C. P.....	Agricultural.....	Stillwater
Peck, H. L.....	Engineering.....	Stillwater
Reynolds, E. B.....	Agricultural.....	Monroe, Louisiana
Reynolds, O. H.....	Engineering.....	Oklahoma City
Robertson, A. D.....	Agricultural.....	Stillwater
Robinson, Geo. B.....	Agricultural.....	Tulsa
Roeser, Harry.....	Engineering.....	Perry
Russell, Carl.....	Agricultural.....	Warner
Russell, Mamie.....	Domestic Science and Arts.....	Warner
Schaefer, Paul.....	Engineering.....	Mountain View
Schwark, Conrad.....	Agricultural.....	Stillwater
Shiflett, R. F.....	Agricultural.....	Duncan
Shiry, E. E.....	Agricultural.....	Shattuck
Smart, Faye.....	Domestic Science and Arts.....	Stillwater
Smith, John Graham.....	Agricultural.....	Chickasha
Spohn, Callie.....	Domestic Science and Arts.....	Stillwater
Stevens, Margaret.....	Domestic Science and Arts.....	Stillwater
Talbot, Gertrude.....	Teachers' Normal.....	Stillwater
Taylor, Inez.....	Domestic Science and Arts.....	Stillwater
Tourtellotte, Evert.....	Agricultural.....	Stillwater
Vance, Leon Robert.....	Agricultural.....	Blackwell
Webb, Howard F.....	Agricultural.....	Broken Arrow
Webb, Leone.....	Domestic Science and Arts.....	Broken Arrow
Whipple, A. F.....	Science and Literature.....	Stillwater
Williamson, Carrie.....	Domestic Science and Arts.....	Stillwater
Williamson, Emery.....	Engineering.....	Stillwater
Wise, Oscar.....	Agricultural.....	Stillwater
Wood, Ray A.....	Engineering.....	Iahoma
Word, Gurtha.....	Science and Literature.....	Stillwater
Young, Kenneth R.....	Engineering.....	Stillwater

Sophomores

Abernathy, Ora.....	Domestic Science and Arts.....	Hollis
Abernathy, Oscar.....	Science and Literature.....	Hollis
Albert, Blanche.....	Science and Literature.....	Stillwater
Anderson, Paul K.....	Engineering	Gotebo
Andrews, Maud.....	Domestic Science and Arts.....	Stillwater
Arrendale, Celeste.....	Domestic Science and Arts.....	Bristow
Bandel, Maude Adeline.....	Domestic Science and Arts.....	Ramona
Bass, Lillian Mae.....	Teachers' Normal.....	Enid
Beck, Paul.....	Science and Literature.....	Hunter
Best, Robt. T.....	Agricultural	Wagoner
Bidwell, Harry C.....	Engineering	Bison
Bishop, Jaye.....	Domestic Science and Arts.....	Stillwater
Boyd, Nina V.....	Science and Literature.....	Hooker
Boydston, Ethel.....	Domestic Science and Arts.....	Caddo
Breidenthal, Hazel.....	Domestic Science and Arts.....	Stillwater
Brisby, Cassie K.....	Domestic Science and Arts.....	Enid
Broemel, Agnes.....	Teachers' Normal.....	Stillwater
Bush, Ella.....	Science and Literature.....	Comanche
Butler, Joe.....	Engineering	Omega
Bynum, Willis.....	Engineering	Ardmore
Carpenter, Chas.....	Agricultural	Bridgeport
Carpenter, Muriel E.....	Engineering	Collinsville
Cass, E. R.....	Agricultural	Tulsa
Choate, Geo. R.....	Agricultural	Indianola
Cinnamon, R. E.....	Agricultural	Garber
Clemmer, Harry.....	Agricultural	Ponca City
Cobb, Cecil C.....	Engineering	Arapaho
Conn, Julian.....	Engineering	McCurtain
Connell, James.....	Agricultural	Stillwater
Connell, Louise.....	Domestic Science and Arts.....	Stillwater
Corbin, Bert O.....	Engineering	Ogden, Iowa
Crane, Neita.....	Teachers' Normal.....	Arapaho
Cunningham, Katherine.....	Science and Literature.....	Glencoe
Davis, Geo.....	Engineering	Stillwater
Davis, Guy.....	Agricultural	Bronte, Texas
Doty, Harold.....	Agricultural	Stillwater
Drummond, Alfred.....	Agricultural	Hominy
Dunlap, Gerald B.....	Teachers' Normal.....	Red Oak
Edson, Emmett O.....	Agricultural	Stillwater
Elston, Welcome Bridges.....	Engineering	Shawnee
Elzey, Ruth.....	Teachers' Normal.....	Morris
Farmer, Mark K.....	Engineering	Stillwater
Fellows, Keith.....	Engineering	Stillwater
Finch, Laura.....	Domestic Science and Arts.....	Chandler
Fisher, Anna.....	Domestic Science and Arts.....	Arapaho
Fisher, John M.....	Engineering	Arapaho
Forrester, W. E.....	Agricultural	Stratford
Foster, Faye F.....	Agricultural	Perry
Freeman, Ray.....	Agricultural	Guthrie
Friedemann, Theodore.....	Science and Literature.....	Stillwater
Garrett, Emmett.....	Engineering	Stillwater
Gassaway, Floyd.....	Engineering	Stillwater
Graham, E. E.....	Agricultural	Ardmore
Gray, Willis N.....	Engineering	Stillwater
Green, Brook.....	Engineering	Pawnee
Griffeth, Minnie.....	Domestic Science and Arts.....	Stillwater
Griffeth, Ross J.....	Science and Literature.....	Stillwater
Hale, Emmett M.....	Engineering	Pryor
Hall, Ethel.....	Teachers' Normal.....	Lone Wolf
Harris, Inez June.....	Teachers' Normal.....	Stillwater
Harrison, Mitchell.....	Science and Literature.....	Whitefield
Haun, Carl B.....	Engineering	Pond Creek
Henson, Claud.....	Agricultural	Stillwater
Henson, Ethel.....	Domestic Science and Arts.....	Stillwater
Henson, Ray.....	Agricultural	Stillwater
Heston, Adrean.....	Engineering	Stillwater
Hilgenberg, L. W.....	Engineering	Stillwater
Hines, Leland.....	Science and Literature.....	Sallisaw

Hobgood, Guy.....	Agricultural	Stillwater
Holford, F. O.....	Agricultural	Madill
Holloman, Eugene.....	Science and Literature.....	Stigler
Horton, G. Wayne.....	Agricultural	Mekuskey
Horton, Eugene.....	Science and Literature.....	Mekuskey
Houck, Afton.....	Domestic Science and Arts.....	Stillwater
Howard, Virginia.....	Science and Literature.....	Fort Worth, Texas
Irvin, Gladys.....	Domestic Science and Arts.....	Stillwater
Jackson, J. A.....	Engineering	Stillwater
Jacobs, Ethelwyn.....	Science and Literature.....	Stillwater
Jarrett, Jeff.....	Science and Literature.....	Wetumka
Katz, Henryetta.....	Science and Literature.....	Sapulpa
Kile, Eugene.....	Science and Literature.....	Stillwater
Kirchner, Ralph R.....	Engineering	Perry
Kite, Wm. Casper.....	Engineering	Perry
Knight, John L. Roy.....	Science and Literature.....	Asher
Knight, Lillian.....	Domestic Science and Arts.....	Stillwater
Knoblock, Cecil.....	Science and Literature.....	Stillwater
Kooker, Katherine.....	Domestic Science and Arts.....	Kingfisher
Lovell, Clemens M.....	Engineering	Waukomis
Luman, Ocie.....	Domestic Science and Arts.....	Lamar
McBride, Lillian.....	Domestic Science and Arts.....	Stillwater
McBride, Pearl.....	Domestic Science and Arts.....	Stillwater
McBride, R. V.....	Agricultural	Stillwater
McWilliams, H. A.....	Agricultural	Miami
Mannheimer, Ruth.....	Domestic Science and Arts.....	Pawnee
Mantle, Guy.....	Agricultural	Adair
Marsh, Corinne.....	Domestic Science and Arts.....	Stillwater
Marx, Lloyd S.....	Engineering	Pawnee
Mayer, Sylvia.....	Domestic Science and Arts.....	Chandler
Miller, Ella.....	Domestic Science and Arts.....	Stillwater
Minton, H. Lee.....	Engineering	Enid
Mitchell, Joe.....	Teachers' Normal.....	Hickory
Morrison, Virginia.....	Science and Literature.....	Stillwater
Mullen, Clyde W.....	Agricultural	Lawton
Murphy, H. D.....	Agricultural	Marshall
Needham, Herbert.....	Agricultural	Oklahoma City
Neerman, Alma.....	Teachers' Normal.....	Tulsa
Nixon, Carl.....	Engineering	Wapanucka
Norman, Victor L.....	Engineering	Stillwater
Oldham, Albert.....	Science and Literature.....	Stillwater
Olmstead, Merritt.....	Science and Literature.....	Marshall
Orr, Paul F.....	Science and Literature.....	Lawton
Page, J. L.....	Science and Literature.....	Stigler
Painter, Dorothy.....	Domestic Science and Arts.....	Stillwater
Patterson, W. H.....	Engineering	Stillwater
Payne, Wm.....	Science and Literature.....	Shawnee
Perkins, Chester.....	Science and Literature.....	Temple
Powers, Hazel.....	Domestic Science and Arts.....	Perry
Putman, John.....	Agricultural	Glenn
Radnich, Helen.....	Domestic Science and Arts.....	Stillwater
Rapp, Workman.....	Agricultural	Stillwater
Ray, Elsie.....	Domestic Science and Arts.....	Stillwater
Reeve, John R.....	Engineering	Dewey
Reid, Guy.....	Engineering	Stillwater
Reynolds, F. S.....	Agricultural	Monroe, Louisiana
Riley, James H.....	Engineering	Cushing
Rocky, Nellie.....	Teachers' Normal.....	Stillwater
Rogers, Guy F.....	Science and Literature.....	Ames
Rose, Rollin.....	Agricultural	Stillwater
Rush, Ethel.....	Domestic Science and Arts.....	Stillwater
Russell, Christy.....	Science and Literature.....	Warner
Sanders, Grover.....	Agricultural	Kingfisher
Scivally, Grace.....	Domestic Science and Arts.....	Springer
Scott, Wiley.....	Agricultural	Carnegie
Selph, Nina.....	Domestic Science and Arts.....	Stillwater
Shaw, Ava.....	Domestic Science and Arts.....	Stillwater
Simank, E. W.....	Engineering	Fayetteville, Texas

Smith, A. R.	Agricultural	Haskell
Smith, Elwin J.	Engineering	Oklahoma City
Spear, Maude	Engineering	Stillwater
Spencer, Earl	Agricultural	Stillwater
Spencer, Joseph R.	Agricultural	Stillwater
Stinson, Chester C.	Agricultural	Comanche
Suhl, G. Elva	Science and Literature	Uncaas
Taft, Harold E.	Engineering	Ann Arbor, Michigan
Taggart, Jeannette G.	Science and Literature	Orlando
Taylor, Jatta	Domestic Science and Arts	Stillwater
Thompson, Pauline	Domestic Science and Arts	Ralston
Thompson, Grady	Agricultural	Stillwater
Tice, Eula Frances	Science and Literature	Hollis
Tippie, Geo. O.	Teachers' Normal	Pryor
Van Eaton, Chas. W.	Science and Literature	Fort Cobb
Venters, H. D.	Science and Literature	Bader, Illinois
Vezey, Herman	Science and Literature	Orlando
Walker, Lewis E.	Science and Literature	Fort Worth, Texas
Ware, Alta B.	Domestic Science and Arts	Stillwater
Warren, C. R.	Agricultural	Oklahoma City
Warren, Jessie	Domestic Science and Arts	Adair
Watkins, J. E.	Teachers' Normal	Canute
Weber, A. G.	Science and Literature	Stillwater
Weber, Carl S.	Teachers' Normal	Calumet
Weber, H. K.	Engineering	Bessie
Weith, Karl R.	Engineering	Ardmore
West, Winnie	Domestic Science and Arts	Hominy
Wheat, J. J.	Engineering	Stillwater
White, J. P.	Agricultural	Stillwater
Whitlock, Ernest	Science and Literature	El Reno
Wildman, Ethel	Teachers' Normal	Stillwater
Wilson, Edw. L.	Agricultural	Fort Towson
Woodson, J. Clay	Engineering	Altus
Woodworth, Louis	Agricultural	Perry
Young, Joseph E.	Engineering	Stillwater
Young, Trissie	Science and Literature	Stillwater

Freshmen

Allen, Henry Lewis, Verden	Autry, Raymond, Stillwater
Andrews, Myron, Okeene	
Bacon, Wm. Hubbard, Colbert	Bonar, Bayard B., Stillwater
Balfour, Bessie, Stillwater	Bonar, Mollie M., Stillwater
Barr, Ray, Stillwater	Botkin, Glenn, Agra
Bates, Floyd John, Stroud	Bowers, Anna L., Stillwater
Baumann, Charlie, Bessie	Boyd, Homer C., Hooker
Becker, N. Edgar, Stillwater	Boyd, Oran Cecil, Hooker
Berry, David, Chickasha	Brandon, Edna, Stillwater
Berryhill, Roby B., Stillwater	Brower, Laura, Stillwater
Bieberdorf, Lydia, Orlando	Brogelmann, Robt. O., Ringwood
Biddison, Jas. H., Pawnee	Brown, Josie B., Drummond
Biggin, Dorothea, Stillwater	Bryan, Ila C., Stillwater
Blackburn, Joe T., Nida	Byars, Clarence E., Crowder
Blanford, John C., Ada	
Caldwell, Raymond B., Stillwater	Clark, C. L., Stillwater
Calvin, Sidney T., Weleetka	Cloud, Esther, Meno
Canfield, Jesse, Yale	Cole, Pearl, Avery
Caton, Harry, Stillwater	Colglazier, Ray, Stillwater
Chantry, Nila Orren, Perkins	Cordell, Clark, Holdenville
Chilcote, Daude, Stillwater	Crofford, Wm., Tucumcari, New Mexico
Clarridge, Clarence, Danville, Kansas	
Dalton, Clifford, Fairview	Dulaney, Harry, Cornish
Denny, Chas., Stillwater	Durham, Fern J., Stillwater
Dorsett, Ralph Davis, Lamont	Dyer, J. A., Quinton
Duke, Enzley, Stigler	
Ellison, Herbert S., Ola, Arkansas	
Fair, Rinaldo, Stillwater	Fisher, Enid S., Crowson
Farrington, Olin McCabe, Anadarko	Frier, Maude, Sulphur
Fellows, Reeda B., Stillwater	Frost, John A., Stillwater
First, Fern A., Stillwater	Fuzzell, Ray R., Orienta

Gilbert, Harry, Gould
Gordon, Julia, Perkins
Gordon, Mae Frances, Perkins
Graham, Janet, Swink
Gray, Mina E., May

Hamilton, Jennie, Geronimo
Hamilton, Murphy F., Stillwater
Hammers, Treve, Jennings
Harris, Clive, Stillwater
Harris, Motier, Stillwater
Harris, Paul, Asher
Harvey, David Kent, Wyandotte
Hawkins, Wm. Brevard, Tucumcari, N. M.
Hays, Glenn Gerald, Glencoe
Heisler, Phillip, Chickasha
Henderson, Georgia, Yale
Hendrickson, Elmo, Boynton

Ikard, Wm. Lewis, Chickasha

Jack, Eula, Stillwater
Jack, Rex, Stillwater
Johnson, Harry E., Tulsa

Keho, Maurice, Cleveland
Kelly, Carson, Stillwater
Kelly, Shannon, Stillwater

Lauderdale, Ruby, Stillwater
Lemon, Harley, Enid
Letteer, Roy V., Bristow
Lewis, Velma, Stillwater
Lindsey, James A., Stillwater

MacLean, Mary A., Stillwater
McCord, Paul, Byars
McGeorge, Willie, Stillwater
McIntire, Alma, Dover
McKee, Calvin, Cooperson
McLean, Donald, Foraker
Mackey, Ben Walter, Holdenville
Mann, Geo. Leftridge, Holdenville
Maroney, Hugh, Stillwater
Martin, Edw. Harold, Watonga
Maxey, Howard, Kennedale, Texas
Marlin, W. Ross, Glencoe
Marshall, Robt., Arkansas City, Kansas

Naylor, Harold R., Hollister
Neff, Jacob Milton, Hooker
Nelson, Ivo A., Stillwater
Newton, Maud, Stillwater

Odell, Lynn, Waukomis
Odor, Ralph K., Arcadia
Ogle, Leo E., Arcadia

Parsons, Alva W., Renfrow
Piepke, John J., Wellston

Ray, Colonel S., Gould
Robinson, Joseph L., Omega

Sanders, Prentice, Wheeler, Texas
Scott, Erye Herman, Stillwater
Scott, Izora May, Roll
Scrivner, Russell, Maysville
Shively, Hazel, Stillwater
Simank, B. O., Fayetteville, Texas
Smith, A. Foster, Seminole
Smith, Pearl, Konawa
Spain, Ruby, Ryan
Speck, Herald B., Sterling, Kansas

Tarver, L. L., Ardmore
Tate, Otis L., Vian
Thompson, Ferral, Stillwater

Gray, Ruth, Stillwater
Gross, Leona, Braman
Gross, Louise, Braman
Gross, Myrtle, Braman

Heston, M. Lucille, Stillwater
Hewett, Norma Fredrica, Stillwater
Hicks, Clifton A., Bluejacket
Hinkel, John W., Stillwater
Holland, Cicero, Tulsa
Horton, Earl Edw., Heath Springs, S. C.
Horton, Everett Elvin, Pond Creek
Hoeffer, Forrest, Stillwater
Houck, Kathleen, Stillwater
Hueston, Clifford Vernon, Kelleyville
Hueston, C. L., Kellyville

Ives, Earl Evert, Avery

Jones, Fred L., Stillwater
Jones, Oscar Lawrence, Vinita

Kenworthy, Chester, Summers, Arkansas
Kurtz, L. A., Seadrift, Texas

Long, Florine, Duncan
Lowery, Phillip H., Loca
Lowery, Elton, Poteau
Lowry, Fern Amanda, Stillwater

Mason, Wm. Jess., Lehigh
Maxwell, Lillian, Stillwater
Melton, Armon, Stillwater
Merkey, Samuel, Cloud Chief
Milam, Joe Harmon, Clifton Hill, Missouri
Miles, Dale Arthur, Hammon
Monday, Beulah, Stillwater
Moore, Gilbert Parvin, Stillwater
Moorman, Helen, Stillwater
Morgan, Wm., Tuskahoma
Morris, Imon O., Gage
Morris, Jas. S., Weatherford, Texas
Morrow, Edw., Harrah

Newton, Webb S., Stillwater
Nimerick, Chas. A., Pawnee
Noles, Carl, Stillwater
Notson, F. Carl, Wellston

Oschman, Goldie, Stillwater
Owsley, Byrla, Stillwater
Oxley, Wm. Elijah, Cleo

Pigg, Albert, Boynton
Powell, J. J., Cherokee

Rollo, Chas. Miller, Shawnee
Rouse, Maurice, Coyle

Spohn, Gladys M., Stillwater
Stallings, Mary Ida, Morrilton, Arkansas
Stanley, Mae, Wister
Stansbury, Anna A., Lovell
Staton, Jesse, Addington
Steen, Lucille, Stillwater
Stout, Chas. Gordon, Wellston
Stover, Elizabeth, Stillwater
Stranahan, Kenneth A., Cheyenne

Tillinghast, Harold, Glencoe
Turley, G. E., Purcell

Varner, Orpheus Finley, Poteau

Wade, Neal J., Cement
Walcher, R. B., Garber
Wallace, Alberta, Kinta
Walters, Joe, Stillwater
Warren, Lydia, Adair
Warren, Nelson, Adair
Washburn, Ruth Irene, Chilocco
Weaver, Wm. Carl, Stillwater
Weir, M. Blanche, Stillwater
West, Joseph D., Anadarko

Vermillion, Ray R., Stillwater

Wheeler, Birdie, Stillwater
Whittenberg, Geo. Wm., Stillwater
Williams, Armon, Marshall
Willis, Chas. A., Stillwater
Wilson, Grace, Stillwater
Woodson, Mortimer, Stillwater
Woodson, Genella, Stillwater
Wortman, Lco S., Stillwater
Wortman, R. B., Stillwater
Wright, Gertrude L., Olney

Sub-Freshmen

Abbott, Leo L., Niles
Abererombic, Leone W., Cashion
Abererombic, Russell, Cashion
Alexander, Fred L., Gage

Baker, John, Mannford
Barron, Wm. Ralph, El Campo, Texas
Bass, Jas. Franklin, Elk City
Bates, Loyal, Stillwater
Baugh, Roseoe R., Chotcau
Baumann, Fred, Bessie
Bentley, Ulla M., Coyle
Berry, Ruby, Stillwater
Berry, W. S., Stillwater
Black, Jas. Alexander, Oklahoma City
Bonham, Clark B., Rocky
Boone, Lawrence D., Hardy
Bostwick, Cecil, Pleasant Valley

Caesar, Cleo, Brooken
Caldwell, Virgil E., Stillwater
Carson, Richard B., Padu
Carter, Frank, Wagoner
Carter, Joe, Stillwater
Coleman, Bertha, Seminole
Coleman, Wm. E., Alma, Arkansas

Dennison, Myrtus B., Stillwater
Dent, Gladys, Stillwater
Dittrick, Geo. Alvin, Lahoma
Dorman, Lonnie Hubert, Jones

Elkins, Wm., Mountain View
Elrod, Chas. C., Lenapah

Faught, Cleveland, Fort Towson
Featherston, Willis F., Featherston
Forrester, Enzley H., Stratford

Green, Herbert Lee, Miles

Hane, Ralph, Waukomis
Harden, Geo. F.
Hardy, Abbie W., Ardmore
Harris, Herbert, Sapulpa
Harrison, Dora B., Stillwater
Harwell, Hamp, Coinish
Haskell, Paul, Oklahoma City

Ingraham, Chas. F., Driscoll

James, Elwin F., Glazier, Texas
Johns, Josephine, Stillwater

Kaboth, Rex, Henryetta
Kammerdiener, Earl, Oklahoma City
Kennedy, Albert A., Tulsa
Kenyon, Hallie, Kaw
Kilpatrick, Charlie, Hunter

Koch, Herman, Bessie

Albert, Rose L., Stillwater
Anderson, Myrtle, Bressie
Anderson, Roy L., Stillwater
Andrews, Horace, Stillwater

Braselton, Fred M., Stillwater
Braxton, Chas. L., Ripley
Brazil, Andrew Virgil, Hartshorne
Breidenthal, Leslie T., Stillwater
Broek, Mary Dale, Kendrick
Brodell, Albert P., Keystone
Broemel, Richard, Stillwater
Brookhart, Ernest, Morrison
Brower, Maud, Stillwater
Buffington, Edith, Stillwater
Burnham, Ruth E., Stillwater
Bussing, Elbert C., Fountain
Butler, James, Walter

Conner, John Henry, Stillwater
Cooley, Clyde M., Kaw City
Cooley, Dan F., Bridgeport
Cossey, A. B., Prague
Cossey, Clyde C., Prague
Cox, Will, Stillwater
Cozad, Riley W., Gerty

Dunham, Lenox, Adair
Dunn, Wm. A., Wapanucka
Durham, May, Stillwater
Dyer, Jessie E., Quinton

Evans, Anna Ruth, Stillwater
Evans, James, Osage

French, Mattie E., Stillwater
French, Laura, Kiowa, Kansas

Haston, Clyde, Stillwater
Hawley, Ruea, Stillwater
Hendrickson, Oliver, Boynton
Hoeffer, Miss Cecil, Stillwater
Hoke, Roy, Quay
House, Russell Floyd, Bristow
Hull, Ray, Stillwater

Irvin, Richard A., Sallisaw

Jones, Miss J. H., Reed

Kilpatrick, Roy, Hunter
Kirby, Arlie, Stillwater
Knight, Chas. Roy, Shawnee
Knowles, Lola, Stillwater

Lane, James Roy, Shawnee
Latimer, Winifred, Patterson

McInnes, Ray, Okarche
McKinley, T. J., Kiel
Mahaffey, Max M., Stillwater
Malernee, Reao, Glencoe
Malernee, Alfa, Glencoe
Martin, Claude, Adair
Mathews, Richard, Stillwater

Naron, Clarence, Checotah
Nelson, Roy E., Sparks
Netherton, Cecil, Needmore

Oakes, Gibson, Osage
Odermann, Joseph J., Oklahoma City

Packer, Eli, Liberal, Kansas
Paris, Gladys, Stillwater
Parks, Lela M., Anadarko
Patterson, Alvin E., Stillwater
Patterson, Edna, Stillwater
Patton, Mary, Stillwater
Percy, Ernest F., Thomas

Rabon, Floyd, Madill
Ralston, Nina Marie, Glencoe
Ramseyer, Della May, Mulhall
Robertson, Reuben, Stillwater

Scott, Frances E., Roll
Scrivner, Jas., Maysville
Shiffett, Zelma, Duncan
Showalter, Esther, Thomas
Showers, Lloyd, Apache
Showers, Velma E., Apache
Shreves, Mable, Ripley
Shumate, Bryan, Stillwater
Sicherman, Sam'l J., Glencoe
Simmons, Virgil, Stillwater

Thomason, Luna, Kiowa, Kansas
Thompson, Seth, Coyle
Thompson, Rollin, Stillwater

Von Tungeln, Marie, El Reno

Waggoner, Addie, Marshall
Wallace, Gerald A., Stillwater
Wallace, Tate, Dustin
Waller, Wm. C., Albany, Texas
Ware, Virgie L., Stillwater
Watson, Bernal A., Oklahoma City
Watts, Neil E., Arapaho
Webster, Donald W., Oklahoma City
Wells, Iva L., Kingfisher

Lyons, Katherine, Stillwater

Mathies, J. Paul, Wister
Meigs, Chas. R., Hulbert
Mendenhall, D. K., Alva
Miller, Fern, Stillwater
Millikan, Chas. V., Stillwater
Mondy, Chas., Stillwater

Netick, Joseph, Payson
Newton, Roy, Stillwater
Nims, Harry L., Cushing

Overstreet, Russell, Cowlington
Outhier, Virgil, Homestead

Pilkenton, Earl J., Apache
Plank, Bertha, Bartlesville
Porter, Roy T., Perkins
Powell, Willard R., Stillwater
Price, Grant, Butler
Pullman, Margaret L., Stillwater
Putman, Link, Glenn

Rogers, Hugh, Pryor
Rose, Mayme, Glencoe
Roy, Jessie Grace, Hillsdale
Roy, Percy Forest, Hillsdale

Sims, Wm. Oscar, Pawnee
Spain, Ernest, Sentinel
Spear, Catherine, Stillwater
Stallings, Lee R., Mannville
Stansbury, Floy W., Lovell
Stanton, Clyde, Marlow
Stoltenberg, August H., Lone Wolf
Stover, Dora, Stillwater
Sunday, Ellis, Collinsville
Sunday, Jake, Collinsville

Trolinger, Ivan, Adair
Thorp, Oren H., Skedee
Tucker, Ernest S., Reed

Voyles, Clyde L., Blackburn

Whitford, Thos. N., Jones
Wiggs, Harry E., Mannford
Williams, Russell G., Chicago, Illinois
Wilton, Rowan, Ryan
Winn, Annalyza, Sophia
Winn, Rosa, Stillwater
Withers, Ida, Glencoe
Wood, Howard, Bromide

Specials

Acheson, Miss M., Stillwater

Bedinger, Mrs. S. C., Stillwater
Buffington, Betha, Stillwater
Burney, Edw. E., Stillwater

Clawson, Mrs. Vera, Stillwater

Dailey, Edna Marie, Stillwater
Dawson, Cora, Stillwater

Ellis, Annie, Chandler

Fewel, Chas. A., Muskogee
Floyd, Pattie, Ashland

Goldsby, Frank, Washington
Goodwin, Maud S., Auburn, Nebraska

Adrean, Toner H., Keystone

Burnham, Zoe, Stillwater
Buskirk, Lillian Clair, Stillwater

Connell, Mary, Stillwater

Dawson, Mamie, Stillwater

Frieden, Wm., Kiowa, Kansas

Griggs, Mrs. Neita, Stillwater
Grisham, R. Ethelyn, Stillwater

Haagar, Hyral S., Stillwater	Harnden, E. E., Stillwater
Jablow, Mrs. Frances, Stillwater	
Kilpatrick, Cecil, Stillwater	
Lamont, Anna L., Stillwater	Lyons, Mary, Stillwater
Lamont, Wm. G., Stillwater	
Maxwell, Jacob B., Keystone	McCorkell, Kathryn, Stillwater
McBurney, R., Stillwater	
Nichols, Vera Daisy, Stillwater	Nims, Carrie E., Cushing
Oursler, Elizabeth, Stillwater	
Painter, H. Raymond, Stillwater	Pulley, Augusta J., Cisco, Texas
Pope, J. M., Stillwater	
Rickard, Carlton H., Stillwater	Rule, Mrs. Orpha, Stillwater
Roberts, Homer, Wichita, Kansas	Rust, Iva, Stillwater
Sanders, Mrs. E. Books, Stillwater	Stafford, E. W., Stillwater
Soldani, Frank E., Ponca City	Steinkamp, Geo. F. W., Stillwater
Vezey, Paul, Orlando	
Westbrook, Mrs. E. J., Stillwater	Wright, Louise, Stillwater

Business

Allen, Edgar, Ada	Arrington, Troy, Warner
Baker, Wm. H., Stillwater	Brown, Lewis C., Sasakwa
Barnes, Thos. Lipscomb, Texas	Brown, Wm. E., Drummond
Bennette, Mae, Stillwater	Byrd, Laura J., Stillwater
Bricker, Raymond, Delaware	
Campbell, Jeff, Mangum	Cowan, Robt. B., Mounds
Choate, Tuska, Indianola	Crow, Ross L., Cornish
Clark, Elmer Lloyd, Pawnee	Cunningham, Anna, Stillwater
Clarke, Lucy M., Stillwater	Cunningham, Ella, Stillwater
Cobb, J. R., Arapaho	Curtis, Hazel P., Cleveland
Cooper, Chas., Arapaho	
Dodson, Vern, Ochiltree, Texas	Dunlap, Earl G., Lawton
Dorman, Vernon, Pond Creek	Durham, G. C., Stillwater
Drake, T. J., Stillwater	Durham, Hubert, Stillwater
Ellis, Carl, Hollis	
French, Wm. O., Stillwater	
Gaskill, Ernest, Ralston	Griffeth, Leslie, Stillwater
Gilson, Adrian, Cleveland	Groom, Guy, Miami
Graham, Jesse E., Claremore	
Hale, Rose, Stillwater	Henderson, Geo., Smithville
Hall, C. L., Ardmore	Holland, Louise, Cushing
Harrell, S. G., Ardmore	Holloman, Essie, Hollister
Harrison, Mildred, Cushing	Holloman, Roxana, Hollister
Harvey, Ruth, Stillwater	Homer, C. N., Krebs
Hayes, Margarete, Stillwater	Hope, Mrs. Mary, Stillwater
Hebard, Thos. G., Arapaho	Huff, Ina, Ponca City
Heiman, Frank, Okarche	Hurst, Simpson, Pawnee
Jessee, Zenas N., Supply	Jones, Chester, Stillwater
Johnson, Lawrence, Stillwater	Jones, W. N., Chickasha
Keller, Clinton, Arkansas City, Kansas	Kelley, Geo. S., Vinita
Lawson, Ray, Holdenville	Loebel, Stephanie, Stillwater
Lewis, Curtis W., Ponca City	London, Lee M., Marietta
Lewis, Earl, Stillwater	Lutz, Ivey, Cordell
McBride, Lois B., Stillwater	McTaggart, Gladys, Stillwater
McDonald, Leroy V., Drummond	Madigan, Ella B., Stillwater

Madigan, Glen, Stillwater
 Mannheimer, Sadie, Pawnee
 Marshall, Clotz, Oklahoma City
 Martin, Jas. L., Pontotoc
 Mathews, Jas. T., Marietta
 Meadville, Carrie D., Stillwater
 Meley, Norman, Cleveland

Newcomb, Vella, Apache

Overstreet, Coleman, Loveland

Pace, Alonzo, McGirk, Missouri
 Perdue, E. R., Stillwater
 Phenis, Mrs. Elma, Stillwater
 Pollard, Lee, Nowata

Ray, Margaret, Stillwater
 Redwine, Jas. B., Norman
 Richards, Carl, Corsicana, Texas

Salzenstein, Fannie, Stillwater
 Schubel, Leta R., Stroud
 Sewell, Roy, Mobeetie, Texas
 Shannon, Jas. S., Chickasha

Taylor, Myrtle, Stillwater
 Taylor, Oscar, Stillwater

Vaughn, Frank, Supply

Wadley, D. T., Stillwater
 Wallingford, Arthur, Stillwater
 Wallingford, Harold, Stillwater
 Warren, Maude, Montrose, Colorado
 Wells, Dean, Stillwater
 Whippo, Carrie E., Ochiltree, Texas

Menefee, Wm. L., Pauls Valley
 Merchant, J. E., El Campo, Texas
 Milton, Lee Roy, Mountain View
 Milton, Thurman, Mountain View
 Miner, Callista G., Burwell, Nebraska
 Morris, Thos. Walter, Guthrie
 Murphy, Curtis, Stillwater

Nichols, Anna L., Ponca City

Poole, Ed. S., Nowata
 Price, G. C., Stillwater
 Pullman, Grace, Stillwater

Robison, Ray, Stillwater
 Rock, Fred Henry, Pawnee
 Ryno, Bess, Stillwater

Shannon, R. L., Chickasha
 Shelby, Jesse, Stillwater
 Stallard, F. M., Stillwater
 Swim, Leslie, Hennessey

Terry, Frank E., Chickasha
 Turner, Geo., Connerville

Vermillion, E. E., Stillwater

Wileman, Lolla A., Stillwater
 Wilkins, Maurice A., Frederick
 Wittich, V. R., Stillwater
 Woolard, Alonzo, Stillwater
 Wright, L. J., Stillwater

School of Agriculture and Domestic Economy (First Year)

Allen, John L., Garber

Bowlby, W. A., Chattanooga
 Braun, Joe, Hobart

Clark, Ray Cromwell, New Goodwin
 Callaway, S. C., Duncan

Foster, Newton M., Catoosa

Graves, Ralph, Jones

Johnson, Archie, Lyons, Nebraska

Mathers, Roy, Mobeetie, Texas
 Meigs, Carrie M., Hulbert

Overton, Wm., Lawton

Pitzer, Florence, Stillwater
 Pitzer, Nellie, Stillwater

Raney, Frank, Higgins, Texas

Sears, H. H., Whitewright, Texas
 Stoker, Frank, Walter

Wells, Harry, Stillwater
 Wheeler, Lester W., Stillwater
 Wilhelm, Chas. F., Erick

Anderson, G. A., Shawnee

Brouser, Oscar, Ordway, Colorado

Cole, Preslie B., McAlester
 Cornelius, Jesse, Norman

Gregory, Jesse, Jenks

Merrilees, C. W., LaKemp
 Meyer, Harry, Sapulpa

Precure, Ernest Paul, Choctaw

Rouse, Claude, Coyle

Summers, Ruth, Capron

Williams, J. E., Campbellsburg, Kentucky
 Williams, Paul B., Stillwater
 Wilson, Edgar, Heavener

(Second Year)

Arnold, Charlie, Banner

Baine, Bernie R., Grimes
 Bellinghausen, L. L., Ponca City

Brunkan, Harrison O., Gracemont

Casselman, Don, Grainola	Crawford, Robt., Dewey
Copley, Gladys, Hinton	
Diggs, Sam'l L., Stillwater	
Goldsby, R. O., Washington	Graham, Cecil W., Verden
Hegberg, Eugene, Sapulpa	Holmes, John W., Lexington
Holden, Homer H., Wakita	
Ives, Marshall W., Avery	Jordan, Owen, Vera
Lamar, Frank, Fairland	Lewis, Willie A., Wynnewood
Lewis, Ira, Ponca City	
McCluskey, Grace M., Billings	Morris, Lizzie, Cushing
Mead, Katie, Ochiltree, Texas	
Nuckolls, E. Virgil, Quinton	Nulick, E. L., Lockridge
Olson, Fred, Saratoga	Phillips, Wesley, Stillwater
Ramseyer, Floyd, Mulhall	Riffe, Harry, Tyrone
Rhodes, Thomas, Sallisaw	Roberts, Roland, Renfrow
Shiflett, Cyril B., Duncan	Sorenson, Edison, Wheeler, Texas
Smith, Harrison, Nowata	Stinson, Nannie, Comanche
Taylor, Davenport, Thackerville	Terry, James, Hobart
Von Tungeln, Henry, El Reno	
Waggoner, Benjamin, Marshall	Wortman, Theresa, Stillwater
Wood, Miss Burl, Stillwater	
Yeager, Everett, Kremlin	

Summer Normal

Albright, Gae, Perkins	Amey, Fannie, Ripley
Alles, Elvira, Cushing	Amey, Julia E., Ripley
Alspaw, Stella, Ripley	Andrews, Maud, Okcene
Baade, Martha, McCloud	Bowers, Charles R., Stillwater
Ballinger, Nellie, Glencoe	Brandon, Edna, Stillwater
Barkley, Anna I., Okemah	Braxton, Mary, Ripley
Bell, Mrs. E. J., Cushing	Briggs, Nellie M., Stillwater
Berry, Lesta Marguerite, Oklahoma City	Brooks, Lola, Stillwater
Berry, Lucille, Oklahoma City	Brower, Laura, Stillwater
Biggs, Rena, Perry	Brown, Ada Mae, Stillwater
Bishop, Corinne, Stillwater	Brown, Houston, Cushing
Bishop, W. Jaye, Stillwater	Buffington, Edith, Stillwater
Biswell, Mary, Ripley	Bunney, Bessie, Stillwater
Blackwell, Carl P., Floydada, Texas	Burnett, Mrs. Zula, Stillwater
Blosser, Frank R., Stillwater	Burnham, Ruth E., Stillwater
Bonar, M. H., Stillwater	Burnham, Zoe, Stillwater
Bonebrake, Viva, Cushing	Burrell, Della, Stillwater
Bowers, Anna Laura, Stillwater	Buskirk, Lillian, Stillwater
Campbell, Rhea, Guthrie	Clowers, Otie Estelle, Okemah
Campbell, Viola, Guthrie	Collins, Blanche, Stillwater
Cantwell, Bertie, Stillwater	Cooke, Daniel B., Mehan
Carter, Audra, Glencoe	Copley, I. R., Hinton
Carter, Zaida, Stillwater	Correll, V. I., Stillwater
Chilcote, Pearl, Stillwater	Cripe, Dora, Enid
Clark, C. L., Stillwater	Culwell, Wm., Warner
Clark, Joe, Chelsea	Cummings, Sumter, Mena, Arkansas
Clawson, Mrs. Vera, Stillwater	Cunningham, Anna, Stillwater
Clowers, C. F., Okemah	
Dailey, Edith, Stillwater	Donart, Julia, Stillwater
Dailey, Edna, Stillwater	Doty, Harold, Stillwater
Darlow, Harry, Stillwater	Doty, Pauline, Cushing
Darlow, Margaret, Stillwater	Douglas, Mabel, Yale
Davis, Guy, Bronte, Texas	Doyle, Blanche, Cleveland
Davis, Jessie, Adair	Drake, T. J., Stillwater
Davis, Minnie, Stillwater	Durham, Pearl, Stillwater
Donart, Gladys, Stillwater	

Eads, Velma, Frederick
Eaton, Hazel, Cushing

Ferguson, Julia, Stillwater
Floyd, Pattie, Ashland, Alabama
Forrester, Dick R., Stratford

Galloway, Helen, Stillwater
Gartman, Harold, Ripley
Gordon, Julia, Stillwater
Gray, Ruth, Stillwater

Hale, Edna E., Stillwater
Hale, Fannie, Stillwater
Hall, Gertrude, Stillwater
Hallam, Salathiel, Kildare
Hamilton, Fearn, Stillwater
Haraden, Edw. E., Stillwater
Harrison, Dora, Stillwater
Hart, Mrs. Corinne, Orlando
Harvey, Ruth, Stillwater
Havenstrite, Ralph W., Lovell
Hawley, Ruca A., Stillwater
Hayes, Sadye E., Stillwater
Hays, Dee Jay, Stillwater
Hays, G. G., Glencoe
Henderson, Echo, Yale
Henderson, Rhetta, Yale

Irvin, Gladys, Stillwater

Jacob, A. W., Stillwater
Jacob, Celia, Stillwater
Jacobs, Ethelwyn, Stillwater
James, Helen, Stillwater
Janeway, Helen, Stillwater
Johnson, Mary E., Stillwater
Johnson, Vista, Stillwater
Johnston, W. G., Okemah

Kaiser, John, Jr., Prague
Kelly, Carson, Stillwater
Kennedy, Elmer, Sterling
Kennon, Mrs. D., Quay
Kennon, W. Dennis, Quay
Kenyon, Lucille, Kaw
Kile, E., Stillwater

Lane, F. P., Stillwater
Latimer, Louise, Foss
Lauderdale, Ruby, Stillwater
Lewis, Velma, Stillwater
Lilley, Jessie, Cushing
Lilley, Lenna, Cushing

McBride, R. V., Stillwater
McCord, Carrie, Kiowa, Kansas
McCoy, Gertrude, Yale
McCrary, Eula, Stillwater
McDaniel, Effe, Mannford
McGeorge, Willie, Stillwater
McGinty, Geo. E., Lovell
McGuire, Anna, Glencoe
McGuire, Florence, Glencoe
McKee, Claude, Cooperton
McKinnon, Aletha, Glencoe
McLaury, Hattie A., Cushing
McLaury, Irma, Cushing
McLean, Mary, Stillwater
McLelland, Mathilde, Stillwater

Nelson, Lizzie, Morrison
Neumann, Eleanor, Stillwater
Neumann, Iva, Stillwater
Newcomb, Anna, Muldrow
Newland, Nora, Glencoe
Newton, Edna O., Stillwater

Elzey, Ruth, Morris
Epperson, J. H., Apache

Forrester, H. E., Stratford
Foster, Beulah Ethel, Coyle
Foster, Nellie, Stillwater

Griffeth, Minnie D., Stillwater
Griggs, O. C., Dale
Grooms, Zelma, Glencoe

Herndon, May, Garvin
Herron, Alice, Vinita
Herron, Leonard, Waterloo, Illinois
Hesser, John R., Glencoe
Hiet, Sadie, Stillwater
Hinkle, Georgia, March
Hinkel, Wm., Stillwater
Hoggatt, Nellie Lorena, Stillwater
Holt, Mayme, Okemah
Hornbeck, Ruby E., Glencoe
Hoskins, Everet, Quay
Houck, Afton, Stillwater
Huddleson, Elena B., Davenport
Hull, Edward, Stillwater
Hunt, Esther, Stillwater

Jones, Carrie, Stillwater
Jones, Daisy, Stillwater
Jones, Donna, Stillwater
Jones, Emily, Quay
Jones, Ethel, Yale
Jones, Jeane, Stillwater
Jones, J. E., Glencoe

Knight, Ethel, Shawnee
Knight, Myrtle, Stillwater
Knowles, Lola, Stillwater
Krall, John A., Thomas
Krone, Lloy Charlotte, Sparks
Kurtz, Anna, Stillwater

Lingenfelter, Emma, Stillwater
Littlefield, Lifus, Hugo
Long, Cordelia May, Cushing
Long, Gertrude, Avery
Lowman, Edw., Billings
Luse, Mary, Cushing

Madigan, Marguerite, Stillwater
Madigan, Robt., Stillwater
Mahaffey, Otis, Cushing
Mantle, D. Le Roy, Adair
Marble, Mabel, Yale
Maxwell, Lillian, Stillwater
Mead, Mabel Gean, Cleveland
Michelfelder, Mrs. Rose, Yale
Mitchell, Mrs. Edith T., Stillwater
Monday, Beulah, Stillwater
Moore, Helen, Stillwater
Morgan, Mary, Glencoe
Morris, Mrs. Effa, Glencoe
Morrison, Virginia, Stillwater

Nichols, H. O., Okemah
Nicks, Mary, Cushing
Noll, Mary, Stillwater
Noles, C. R., Dundee, Texas
Norman, Victor, Stillwater

Oschman, Maud, Stillwater
Oursler, Anna, Stillwater

Paris, Gladys, Stillwater
Parmley, Elsie, Cushing
Parmley, Eulala, Yale
Patton, Mary, Stillwater
Payne, Z. Fern, Stillwater
Pearson, Marie, Stillwater
Pearson, Thirza, Yale
Peck, C. P., Stillwater
Perry, Eva, Cushing

Rader, Lee, Glencoe
Rader, Sarah, Glencoe
Radnich, Helen, Stillwater
Raibourn, Bessye E., Mtn. Grove, Missouri
Ray, Elsie, Stillwater
Ray, Margaret, Stillwater
Ray, Florence, Stillwater
Ray, Wilbur, Stillwater
Reed, Agnes, Stillwater
Reed, Thos., Stillwater
Ringgold, Hattie, Ripley

Scroggs, Willie, Stillwater
Sargent, Lorraine, Payson
Seay, Ethel, Payden
Seegers, Ernest C., Billings
Shallenberger, G. D., Weleetka
Shaw, Ava, Stillwater
Shellhammer, Alpha, Coyle
Shellhammer, Edna, Coyle
Shellhammer, Jacob, Coyle
Shellhammer, Wm., Coyle
Shiflett, H. D., Duncan
Shreves, Mabel, Ripley
Silverhorn, Bessie, Tryon

Talbot, A. E., Stillwater
Talbot, Gertrude, Stillwater
Tankersley, P. A., Stillwater
Taylor, Inez, Stillwater
Taylor, Jetta, Stillwater
Thedford, Maye, Orlando

Van Arsdell, Ruth, Orlando
Vaughan, Frances, Glencoe

Walker, Kenneth D., Seneca, Missouri
Wallace, Alberta, Kinta
Wallace, Gerald, Stillwater
Wallace, Mary, Stillwater
Wallace, Myrtle, Kinta
Warner, Byrd May, Augusta, Kansas
Warren, Charles R., Oklahoma City
Warren, Jessie, Adair
Warren, Lydia, Adair
Warren, Vera, Adair
Washburn, Ruth, Chilocco

Young, Ruth M., Perkins

Owsley, Byarl, Stillwater
Owsley, Lindsey, Stillwater

Piepkke, Jno. J., Wellston
Pitzer, Florence, Glencoe
Popham, Grace, Stillwater
Powell, Eunice, Adair
Pries, Stella I., Sabetha, Kansas
Porwant, Ina, Stillwater
Pullman, Margaret, Stillwater
Purcell, Verda, Cleveland
Putman, John, Glenn

Ritchey, Letha M., Stillwater
Rogers, C. F., Stillwater
Rogers, Eulala, Stillwater
Rotroff, Cora L., Glencoe
Rotroff, Loto, Glencoe
Russell, John Hodges, Glencoe
Rust, Iva, Stillwater
Ryno, Madeline, Stillwater
Ryan, Edna B., Glencoe
Ryan, Fannie, Glencoe
Ryan, Nellie, Glencoe

Skinner, Thos. W., Cleveland
Smith, Leo, Hallett
Snodgrass, Anna M., Garlington
Spear, Mary, Stillwater
Springer, Mrs. Ruby F., Stillwater
Stover, Bessie, Stillwater
Stover, Dora, Stillwater
Stover, Elizabeth, Stillwater
Straub, Sylvia E., Stillwater
Studebaker, Rosa, Stillwater
Suthard, A. L., Stillwater
Swander, Claude, Cushing

Thompson, Ferral, Stillwater
Thompson, Pauline, Ralston
Thompson, Hattie, Coyle
Tippie, Geo. O., Pryor
Tourtellotte, Evert, Stillwater

Vermillion, Olive, Stillwater
Vickers, Vella, Glencoe

Weaver, W. C., Stillwater
Webb, Jennie, Orlando
Webber, Maud, Pawnee
Whillock, Beuna, Stillwater
White, Lucille, Glencoe
Whittenberg, Geo., Stillwater
Williams, C. D., Stillwater
Wirfs, Clara, Shawnee
Wood, T. B., Beggs
Wooden, Blanche, Mannford
Wylie, Pauline E.

Zimmerman, Edith, Stillwater

Farmers' Cotton Grading Course

Adams, H. E., Glencoe
Cameron, R. H., Seminole
Charboneau, Jess, Stillwater

Davis, Berry, Gracemont

Fields, E. N., Allen

Gillespie, Francis, Ripley

Henson, A. G., Stillwater

Buzzard, Roy, Luther

Collier, V. C., Tushka
Cook, V. V., Sulphur

Davis, Roy R., McCurtain

Gougler, F. A., New Orleans, Louisiana

Hutton, W. P., Cordell

Justice, W. E., Foster.	Krall, J. A., Thomas
Lewis, T. L., Ripley	
McCombs, W. E., Hominy	Moon, Joe R., Okemah
McMahan, W. O., Newalla	
Newcomb, Anna, Stillwater	
Oliver, W. O., Glencoe	Oosthuizen, J. du P., Pretoria, South Africa
Page, J. M., Crescent	Poynter, Dow, Okemah
Parkhurst, O. J., Prague	
Rickstrew, A. H., Meridian	
Schwaba, W. E., Hominy	Stanfill, Willis, Dover
Senter, A. E., Cushing	Swartz, W. C., Carnegie
Thomas, Oscar, Ahpetone	Trader, S. T., Mountain Park
Thompson, Paul K., Stillwater	
Vandeventer, S. M., Merrick	Wylie, Pauline E., Hennessey
Worthington, Thos., Oklahoma City	
Young, David, Okemah	

SUMMARY OF STUDENTS BY CLASSES

Session 1912-13

Senior Class.....	70
Junior Class.....	106
Sophomore Class.....	172
Freshman Class.....	204
Sub-Freshman Class.....	188
Special Students.....	47
Business Course.....	120
Two-Year Course in Agriculture and Domestic Economy.....	72
Summer Normal Students.....	307
Farmers' Cotton Grading School, July, 1912.....	37
Total	1,323
Special School for Boys and Girls at Oklahoma State Fair.....	89
Farmers' Short Course, January, 1913.....	471
Total	1,883
Less duplicates.....	33
Total	1,850

SCHEDULE LECTURES, RECITATIONS AND AFTERNOON WORK (Fall Term)

OKLAHOMA A. & M. COLLEGE

185

CLASS	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Freshman ...	Draw. 1a V, VI, VII	Eng. 1a I Eng. 1a III Math. 1a II & IV Hist. 1a V & VII Math. 2a VI	Eng. 1a I Eng. 1a III Math. 1a II & IV Hist. 1a V & VII Math. 2a VI	Eng. 1a I Eng. 1a III Math. 1a II & IV Hist. 1a V & VII	Eng. 1a I Eng. 1a III Math. 1a II & IV Hist. 1a V & VII Math. 2a VI	Math. 1a II & IV Math. 2a VI
Sophomore ..	Dairy. 1 II D. A. 2a VI Chem. 1a III & IV	Chem. 1a II M. E. 5 Eng. 2a V & VI	Bot. 1b D. A. 2a V (Pr)	Chem. 1a II M. E. 5 Eng. 2a V & VI	Bot. 1b Eng. 2a V & VI	Chem. 1a II M. E. 5 Eng. 2a V & VI
Junior	M. E. 9a D. A. 6 V	Physiol. 1 I & II Chem. 2 V Latin 1a Physics 4	Physiol. 1 I & II (Pr) Chem. 2 V (Pr) Latin 1a E. E. 1a	Physiol. 1 I & II Chem. 2 V Latin 1a Phys. 4	Physiol. 1 I & II (Pr) Chem. 2 V (Pr) Latin 1a E. E. 1a	Physiol. 1 I & II Latin 1a Chem. 2 V Phys. 4
Senior	A. H. 5 Chem. 8a	A. H. 4 Bot. 6 Soc. Sci. 1 D. S. 19a	A. H. 4 Soc. Sci. 1 D. S. 12a	A. H. 4 Bot. 6 D. S. 19a	A. H. 4 Soc. Sci. 1 D. S. 12a	A. H. 4 Bot. 6 Soc. Sci. 1 D. S. 12a
Freshman	Draw. 1a V, VI, VII	Eng. 1a II Eng. 1a IV Math. 1a V & VIII Hist. 1a III & VI Pub. Spk. 1a I	Eng. 1a II Eng. 1a IV Math. 1a V & VII Hist. 1a III & VI Gym. I	Eng. 1a II Eng. 1a IV Math. 1a V & VII Hist. 1a III & VI Pub. Spk. 1a I	Eng. 1a II Eng. 1a IV Math. 1a V & VII Hist. 1a III & VI Gym. I	Math. 1a V & VII Gym. I & III
Sophomore ..	Chem. 1a III & IV Dairy. 1 II D. A. 2a VI	Agron. 2 Chem. 1a III & V Zool. 1 VI Agron. 9	Dairy. 1 D. A. 2a V (Pr)	Agron. 2 Chem. 1a III & V Zool. 1 VI Agron. 9	Dairy. 1 D. A. 4a VI	Agron. 2 Chem. 1a III & V Zool. 1 VI Agron. 9

I-8:00

II-8:55

Junior	M. E. 9a D. A. 6 V	Physiol. 1 V, VI, VII Chem. 2 I & II Ped. 1 M. E. 10a (Pr) A. E. 2	Physiol. 1 V, VI, VII Chem. 2 I & II Ped. 1 A. E. 2	Physiol. 1 I & II (Pr) Chem. 2 V (Pr) Ped. 1 M. E. 8	Physiol. 1 I & II (Pr) Chem. 2 V (Pr) Ped. 1 M. E. 8	Physiol. 1 V, VI, VII Chem. 2 I & II Ped. 1 A. E. 2	Math. 7 Dairy. 3 (Pr) German 3a
Senior	A. H. 5 Chem. 8a	Entom. 3 C. E. 12 German 3a Dairy. 3	Math. 7 German 3a A. H. 5	Math. 7 Entom. 3 German 3a D. S. 12a	Math. 7 Entom. 3 German 3a D. S. 12a	Math. 7 Dairy. 3 (Pr) German 3a	Math. 7 Dairy. 3 (Pr) German 3a
Freshman	Draw. 1a V, VI, VII A. H. 1a	Eng. 1a V Eng. 1a VI Hist. 1a I & II Math. 2a III, IV, VII	Eng. 1a V Eng. 1a VI Hist. 1a I & II Math. 2a III, IV, VII	Eng. 1a V Eng. 1a VI Hist. 1a I & II Math. 2a III, IV, VII	Eng. 1a V Eng. 1a VI Hist. 1a I & II Math. 2a III, IV, VII	Eng. 1a V Eng. 1a VI Hist. 1a I & II Math. 2a III, IV, VII	Eng. 1a V Eng. 1a VI Hist. 1a I & II Math. 2a III, IV, VII
Sophomore	Chem. 1a III & IV Dairy. 1 II D. A. 11a VI	Bot. 1b II (Pr) Draw. 2a Chem. 1a I (Pr) Latin a Eng. 2a III Chem. 1a IV & VII	Bot. 1b II (Pr) Chem. 1a I (Pr) Eng. 2a III Zool. 1 V Latin a	Bot. 1b II (Pr) Chem. 1a I (Pr) Eng. 2a III Zool. 1 V Latin a	Bot. 1b II (Pr) Chem. 1a I (Pr) Eng. 2a III Zool. 1 V Latin a	Bot. 1b II (Pr) Chem. 1a I (Pr) Eng. 2a III Zool. 1 V Latin a	Bot. 1b II (Pr) Chem. 1a I (Pr) Eng. 2a III Zool. 1 V Latin a
Junior	M. E. 9a D. A. 6 VI	D. S. 6a Soc. Sci. 2 M. E. 10a (Pr) C. E. 2	Pub. Spk. 2 Soc. Sci. 2 C. E. 3	Pub. Spk. 2 Soc. Sci. 2 C. E. 2	Pub. Spk. 2 Soc. Sci. 2 C. E. 2	Pub. Spk. 2 Soc. Sci. 2 C. E. 3	Soc. Sci. 2 M. E. 10a (Pr) C. E. 3
Senior	Agron. 11 D. S. 14a Chem. 8a	Bact. 1 II C. E. 18 Latin 2a	Bact. 1 II C. E. 18 D. S. 14a Latin 2a Chem. 8a	Bact. 1 II C. E. 18 Latin 2a Chem. 8a	Bact. 1 II C. E. 18 Latin 2a Chem. 8a	Bact. 1 II C. E. 18 Latin 2a Chem. 8a	Dairy. 3 (Pr) Latin 2a Chem. 8a A. E. 14a D. S. 14a
Freshman	Draw. 1a V, VI, VII	Eng. 1a VII Math. 1a VI Hist. 1a IV Phys. 5 Gym. III & V	Eng. 1a VII Math. 1a VI Hist. 1a IV Phys. 5 Pub. Spk. 1a III	Eng. 1a VII Math. 1a VI Hist. 1a IV Phys. 5 Pub. Spk. 1a III	Eng. 1a VII Math. 1a VI Hist. 1a IV Phys. 5 Pub. Spk. 1a III	Eng. 1a VII Math. 1a VI Hist. 1a IV Phys. 5 Pub. Spk. 1a III	Eng. 1a VII Math. 1a VI Hist. 1a IV Phys. 5 Gym. V

Sophomore	Chem. 1a III & IV Dairy. I II D. A. 11a VI	Eng. 2a I Bot. 1b I & II (Pr) Chem. 1a I (Pr) Math. 3 Zool. I VII German 1a V	Eng. 2a I Bot. 1b I & II (Pr) Chem. 1a I (Pr) Math. 3 Zool. I VII German 1a V	Math. 3 Draw. 2a (Pr) Latin a	Eng. 2a I Math. 3 Zool. I VII German 1a V	Eng. 2a I Math. 3 Zool. I VII German 1a V
Junior	M. E. 9a D. A. 6 VI	Eng. 8a V Eng. 9a A. E. I	Eng. 8a V Eng. 9a A. E. I	Eng. 8a V Eng. 9a A. E. I	Eng. 8a V Eng. 9a A. E. I	Eng. 8a V Eng. 9a A. E. I
Senior	Agron. 11 D. S. 14a Chem. 8a	Bact. I I Entom. 6 A. H. 9 M. E. 14 C. E. 11 E. E. 6 Fed. 4 & 7 Eng. 5	Vet. Med. 2 Agron. 11 Draw. 7a Ped. 4 & 7 C. E. 11 E. E. 6 M. E. 14 D. S. 14a Eng. 5	M. E. 14 Bact. I I Entom. 6 A. H. 9 Ped. 4 & 7 Latin 2a Eng. 5 C. E. 11	Vet. Med. 2 Agron. 11 Draw. 7a Ped. 4 & 7 Eng. 5 C. E. 8	C. E. 8 Bact. I I Dairy 3 (Pr) Entom. 6 Ped. 4 & 7 Eng. 5
Freshman		Math. 1a I & III Gym. II, VI, VII D. S. 5 VI	Math. 1a I & III Gym. II, VI, VII	Math. 1a I & III Pub. Spk. 1a II Gym. IV D. S. 5 VI	Math. 1a I & III Gym. II, VI, VII D. S. 5 VI	Math. 1a I & III Gym. II, VI, VII D. S. 5 VI
Sophomore		Eng. 2a II & IV Chem. 1a I VI German 1a VI Hist. 1c	Eng. 2a II & IV German 1a VI Hist. 1c	Eng. 2a II & IV German 1a VI D. A. 4a V	Eng. 2a II & IV German 1a VI D. A. 4a V	Eng. 2a II & IV Chem. 1a I VI German 1a VI Hist. 1c
Junior		Bot. 2 Eng. 8a I German 2a Math. 6a	Bot. 2 Eng. 8a I German 2a	Bot. 2 Eng. 8a I German 2a Math. 6a	Bot. 2 Eng. 8a I German 2a Math. 6a	Bot. 2 Eng. 8a I German 2a Math. 6a
Senior	D. S. 14a	Soc. Sci. 5 A. E. 16 Chem. 15 M. E. 13a	Hort. 6 Draw. 7a Soc. Sci. 5 F. E. 7a	Chem. 15 M. E. 13a	Hort. 6 Draw. 7a Soc. Sci. 5 A. E. 15 E. E. 7a	Dairy 3. (Pr) Soc. Sci. 5 Chem. 15 M. E. 13a
Freshman		M. E. 3b II Draw. 1a I D. A. 3a V	Draw. 1a III M. E. 1a III D. A. 1a V Phys. 5 I D. A. 3a VI	Phys. 5 II M. E. 3b I Draw. 1a III & IV	Draw. 1a II M. E. 1a II D. A. 3a VI	A. H. 1a Draw. 1a IV

VI—1:30-3:30					
Sophomore	Agrom. 2 Chem. 1a V Zool. 1 VII	Agrom. 2 M. E. 6a Zool. 1 V	Bot. 1b I Chem. 1a II M. E. 6a D. A. 11a V Agron. 9	Dairy. 1 VI & VII Chem. 1a V	Bot. 1b I Chem. 1a II Zool. 1 V
Junior	D. S. 6a V Phys. 4	Chem. 2 I & II Bot. 2 V D. S. 6a VI C. E. 2 A. E. 3	Physiol. 1 VI, VII D. S. 6a V M. E. 3a A. E. 4	Physiol. 1 V Bot. 2 I D. S. 6a VI C. E. 3 M. E. 3a	E. E. 1a A. E. 3 E. E. 2a
Senior	Bact. 1 V Hort. 6 C. E. 18 D. S. 12a A. H. 9	Bact. 1 II Entom. 6 D. A. 11a V M. E. 13a C. E. 12	Bact. 1 V A. H. 5 Hort. 6 E. E. 7a C. E. 7 A. E. 10a	Bact. 1 II Entom. 3 Bot. 6 Chem. 15 E. E. 6 A. E. 10a	Entom. 3 (Pr) Dairy. 3 M. E. 14 C. E. 11 A. E. 18 E. E. 8a D. A. 13
VII—3:30-5:30					
Freshman		Draw. 1a I M. E. 1a III		Draw. 1a II M. E. 1a III	
Sophomore	Chem. 1a VI Zool. 1 VII	M. E. 6a Zool. 1 VI	Chem. 1a VI	Dairy. 1 I	Zool. 1 VI
Junior	A. E. 16	Chem. 2 I & II Bot. 2 V C. E. 2 A. E. 3	Physiol. 1 V	Physiol. 1 VI & VII M. E. 3a C. E. 3 Bot. 2 I	
Senior		Bact. 1 I M. E. 13a C. E. 12	A. E. 16a	Bact. 1 I Bot. 6 A. E. 10a Chem. 15	
	Drill Gym. (Soph. Girls)	Music	Drill Gym. (Soph. Girls)	Music	Drill Gym. Soph. Girls)
3:30					

SCHEDULE
LECTURES, RECITATIONS AND AFTERNOON WORK
Session 1913-14—Winter Term

CLASS	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Freshman	Drawing 1b VI	Engl. 1b I & III Hist. 1b V & VII Math. 2d II Math. 1b IV Math. 2b VI	Engl. 1b I & III Hist. 1b V & VII Math. 2d II Math. 1b IV Math. 2b VI	Pub. Spk. 1b I Math. 2b VI D. A. 3b V (Pr)	Engl. 1b I & III Hist. 1b V & VII Math. 2d II Math. 1b IV Math. 2b VI	Engl. 1b I & III Hist. 1b V & VII Math. 2d II Math. 1b IV Math. 2b VI
Sophomore	M. E. 6b Chem. 1b VI	Engl. 2b V & VI Chem. 1b I & II A. E. 17a	Engl. 2b V & VI Chem. 1b I Chem. 1b II (Pr)	Chem. 1b II Chem. 1b I (Pr) D. S. 2a VI	Engl. 2b V & VI Chem. 1b I Chem. 1b II (Pr)	Engl. 2b V & VI Chem. 1b II Chem. 1b I (Pr) A. E. 17a
Junior	Chem. 17 I & II C. E. 4 D. A. 7 VII	Latin 1b Engl. 8b I & II Drawing 3b (Pr) Zool. 2 Phys. 3	Latin 1b Engl. 8b I & II D. S. 6b V (Pr) D. A. 7 VI (Pr) E. E. 1b	Latin 1b Engl. 8b I & II D. A. 7 Zool. 2 Phys. 3	Latin 1b Engl. 8b J & II E. E. 1b	Latin 1b Engl. 8b I & II Zool. 2 Phys. 3
Senior	Dairy. 4 Bot. 8 D. S. 20 Chem. 8b E. E. 11 Draw. 7b	Agron. 7 Hort. 7 Vet. Med. 3 D. S. 20 E. E. 7b C. E. 13a	D. A. 12b Agron. 7 Dairy. 4 Hort. 5 Chem. 8b M. E. 17 Soc. Sci. 6	Agron. 7 Hort. 7 Vet. Med. 3 Chem. 8b E. E. 7b Soc. Sci. 6	Agron. 7 Dairy. 4 Hort. 5 D. S. 19b Soc. Sci. 6	Agron. 7 Hort. 7 Vet. Med. 3 D. S. 19b Chem. 8b Soc. Sci. 6
Freshman	Drawing 1b VI	Engl. 1b II & IV Hist. 1b III & VI Math. 2d V Math. 1b VII Pub. Spk. 1b I	Engl. 1b II & IV Hist. 1b III & VI Math. 2d V Math. 1b VII Gym. I	Military Science D. A. 3b V (Pr)	Engl. 1b II & IV Hist. 1b III & VI Math. 2d V Math. 1b VII Gym. I	Engl. 1b II & IV Hist. 1b III & VI Math. 2d V Math. 1b VII Gym. I
Sophomore	M. E. 6b Chem. 1b VI	Chem. 1b III & IV Hort. 1 Drawing 2b Zool. 5	Chem. 1b III Chem. 1b II (Pr) D. A. 4b V	Chem. 1b IV Chem. 1b I (Pr) D. A. 11b V (Pr) Zool. 5	Chem. 1b III Chem. 1b II (Pr) D. A. 4b VII	Chem. 1b IV Chem. 1b I (Pr) D. A. 11b VII (Pr) D. S. 2a V (Pr) Zool. 5

Junior	Chem. 17 I & II C. E. 4 VII D. A. 7 VII	An. Husb. 3a Draw. 3b (Pr) Ped. 2 M. E. 11a A. E. 5	Military Science D. S. 6b V (Pr) D. A. 7 VII (Pr) Ped. 2	D. A. 7 V (Pr) An. Husb. 3a Ped. 2 M. E. 11a A. E. 5	An. Husb. 3a Ped. 2 M. E. 3b	An. Husb. 3a Ped. 2 M. E. 3b
Senior	Dairy. 4 Bot. 8 D. S. 20 Chem. 8b E. E. 11 Draw. 7b	Agron. 8a Dairy. 5 Bot. 8 D. S. 12b Germ. 3b M. E. 15 C. E. 15 E. E. 9	Agron. 8a Dairy. 5 Germ. 3b M. E. 16	Bot. 8 Germ. 3b M. E. 15 C. E. 9	Agron. 8a Dairy. 5 D. S. 12b Germ. 3b M. E. 16	Agron. 8a Dairy. 5 Bot. 8 Germ. 3b M. E. 15 C. E. 15 E. E. 10
Freshman	M. E. 6b D. A. 1b VI	Engl. 1b V & VI Hist. 1b I & II Math. 2b III, IV, VII	Engl. 1b V & VI Hist. 1b I & II Math. 2b III, IV, VII	Engl. 1b V & VI Hist. 1b I & II Math. 2b III, IV, VII	Engl. 1b V & VI Hist. 1b I & II Math. 2b III, IV, VII	Engl. 1b V & VI Hist. 1b I & II Math. 2b III, IV, VII
Sophomore	Drawing 2b	Engl. 2b III Chem. 1b V Hort. 1 Latin b	Chem. 1b VI An. Husb. 2a D. A. 11b V (Pr) D. S. 2a V (Pr) Latin b	Chem. 1b VI An. Husb. 2a D. A. 11b V (Pr) D. S. 2a V (Pr) Latin b	Engl. 2b III Chem. 1b V Hort. 1 Latin b	Engl. 2b III Chem. 1b V An. Husb. 2a D. A. 11b VII (Pr) D. S. 2a V (Pr) Latin b
Junior	Chem. 17 I & II Bact. 4 C. E. 4	Agron. 5 Dairy. 2 Vet. Med. 1 Drawing 3b Soc. Sci. 3 Math. 6	Bot. 3 Bact. 4 Soc. Sci. 3 Math. 6	Agron. 5 Dairy. 2 Vet. Med. 1 Drawing 3b Engl. 9b C. E. 4 E. E. 2b	Bot. 3 Bact. 4 Soc. Sci. 3 Math. 6	Agron. 5 Dairy. 2 Vet. Med. 1 Soc. Sci. 3 Math. 6
Senior	Dairy. 4 Bot. 8 D. S. 20 Chem. 8b E. E. 11 Drawing 7b	Agron. 12 Enty. 4 Engl. 6 Latin 2b M. E. 13b C. E. 14	Military Science Engl. 6 Latin 2b	Bact. 2 Engl. 6 Latin 2b M. E. 13b C. E. 14 E. E. 8b	Agron. 12 Enty. 4 Engl. 6 Latin 2b M. E. 13b C. E. 14	Bact. 2 Engl. 6 Latin 2b M. E. 13b C. E. 14

IV-10:45					
Freshman ...	M. E. 6b D. A. 1b VI	Engl. 1b VII Agron. 10 Hist. 1b IV Math. 1b VI Pub. Spk. 1b V Gym. II, III, V	Engl. 1b VII Agron. 10 Hist. 1b IV Math. 1b VI Pub. Spk. 1b III	Agron. 10 Pub. Spk. 1b V D. A. 3b VI (Pr) Gym. III, II	Engl. 1b VII Agron. 10 Hist. 1b IV Math. 1b VI Gym. III, II
Sophomore ...	Drawing 2b Math. 4a III	Engl. 2a I German 1b V Zool. 1 II Math. 4d VI III, IV, VI	Engl. 2a I German 1b V Math. 4a IV, VI	Military Science D. S. 2a V (Pr)	Engl. 2a I German 1b V Zool. 1 II Math. 4a III, IV, VI
Junior	Chem. 17 I & II Bact. 4 C. E. 4	Chem. 17 I & II Engl. 8b V German 2b C. E. 10a	Engl. 8b V German 2b C. E. 10a	Chem. 17 I & II Engl. 8b V German 2b C. E. 10a	Chem. 17 I & II Engl. 8b V German 2b C. E. 10a
Senior	Dairy. 4 Bot. 8 D. S. 20 Chem. 8b Drawing 7b	An. Husb. 7a Bot. 7 Ped. 5 C. E. 16 A. E. 11	An. Husb. 7a Bot. 7 Ped. 8 C. E. 16 A. E. 11	An. Husb. 10 (Pr) Zool. 4 Bot. 5 C. E. 16 A. E. 14b	An. Husb. 7a Zool. 4 Ped. 5 C. E. 21 A. E. 11
V-11:40					
Freshman ...		Math. 2d I Math. 1b III Gym. V & VI	Math. 2d I Math. 1b III Pub. Spk. 1b II Gym. V & VI		Math. 2d I Math. 1b III
Sophomore ...		Engl. 2a II & IV German 1b VI Zool. 1 I Hist. 2	Engl. 2a II & IV German 1b VI	CHAPEL	Engl. 2a II & IV German 1b VI Zool. 1 Hist. 2
Junior		Chem. 17 V & VI Engl. 9b	Chem. 17 V & VI Engl. 9b		Chem. 17 V & VI Engl. 9b
Senior		Dairy. 6 Hort. 4 A. H. 10 D. S. 14b C. E. 19a	Dairy. 6 Hort. 4 A. H. 10 (Pr) D. S. 14b C. E. 19a		Hort. 4 A. H. 10 D. S. 20

VI—1:30-3:30				
Freshman	M. E. 1a I Drawing 1b VI	M. E. 1b IV Drawing 1b III	Drawing 1b IV M. E. 1a II	M. E. 1b IV Drawing 1b III D. A. 1b V
Sophomore	Chem. 1b III An. Husb. 2a D. S. 2a VII	Chem. 1b V An. Husb. 2a M. E. 6b Zool. 5	Chem. 1b IV Zool. 1 II Hort. 1 I D. A. 2b V	Zool. 1 I Hort. 1 II D. A. 2b VII D. S. 2a VII
Junior	Chem. 17 V & VI Agron. 5 Dairy. 2 Vet. Med. 1 Zool. 2 M. E. 10b	Chem. 17 V & VI Bot. 3 A. E. 6	Agron. 5 Dairy. 4 Vet. Med. 1 A. E. 6	Bot. 3 Pub. Spk. 3 E. E. 1b Bact. 4
Senior	Agron. 12 Hort. 4 Enty. 4 D. A. 9 V M. E. 15 C. E. 13a E. E. 10 A. E. 1b	Agron. 8a Dairy. 5 D. S. 12b E. E. 7b	An. Husb. 7a Bot. 7 Zool. 4 D. S. 14b M. E. 16 A. E. 10b Bact. 2	Bact. 2 Bot. 7 D. A. 9 VI C. E. 22
VII—3:30-5:30				
Freshman	M. E. 1a I Chem. 1b III D. S. 2a VI	Gym. (Girls)	M. E. 1a II Chem. 1b IV Zool. 1 II Gym. (Girls)	M. E. 1b III Chem. 1b VI Zool. 1 I
Sophomore	Zool. 2 Agron. 12 Enty. 4 M. E. 15 C. E. 13a A. E. 10b	D. S. 2b VI	A. E. 6 Zool. 4 M. E. 16 A. E. 10b	Bact. 2 C. E. 22
Junior				
Senior				
All		Drill	Music	Drill
			Music	Music

SCHEDULE
LECTURES, RECITATIONS AND AFTERNOON WORK
 Session 1913-14—Spring Term

CLASS	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Freshman		Phys. 1 III Engl. 1c I & III Bot. 1a V, VI, VII Math. 2e II Math. 2c IV	Physics III Engl. 1c I & III Math. 2e II Math. 2c III & IV	Bot. 1a V, VI, VII Math. 2e II Math. 2c IV	Physics III Engl. 1c I & III Math. 2e II Math. 2c III & IV	Physics III Engl. 1c I & III Bot. 1a V, VI, VII Math. 2e II Math. 2c IV
Sophomore	D. A. 2c VI	Engl. 2c V, VI, VII Hort. 2 Latin c Math. 5	Engl. 2c V, VI, VII Hort. 2 Math. 5 Latin c	Military Science D. A. 5 Latin c	Engl. 2c V, VI, VII Hort. 2 Math. 5 Latin c	Engl. 2c V, VI, VII Hort. 2 Math. 5 Latin c
Junior	Bot. 4 D. A. 8 VI Zool. 3 A. E. 8	A. H. 3b Engl. 8c I & II Latin 1c C. E. 10b	Engl. 8c I & II Latin 1c C. E. 10b	A. H. 3b Engl. 8c I & II Latin 1c E. E. 2c	Engl. 8c I & II Latin 1c C. E. 10b	A. H. 3b Engl. 8c I & II Latin 1c C. E. 10b
Senior	Rural Prob. Ento. 5 Chem. 5 D. S. 21	Agron. 13 Bact. 3 Bot. 9 Ped. 6 German 3c C. E. 17	Agron. 6 Dairy. 7 Bot. 9 Ped. 6 German 3c C. E. 17	Agron. 6 Bact. 3 Bot. 9 Ped. 6 German 3c C. E. 13b E. E. 8c	Agron. 13 Dairy. 7 Bot. 9 Ped. 6 German 3c C. E. 17	Agron. 13 Bot. 9 Ped. 6 German 3c C. E. 17
Freshman		Engl. 1c II & IV Bot. 1a I Math. 2e V Math. 2c VI & VII Gym. III & IV	Engl. 1c II & IV Math. 2e V Math. 2c VI & VII Pub. Spk. 1c I	Bot. 1a I Math. 2e V Math. 2c VI & VII Pub. Spk. 1c II Gym. III & IV	Engl. 1c II & IV Math. 2e V Math. 2c VI & VII Pub. Spk. 1c I	Engl. 1c II & IV Bot. 1a I Math. 2e V Math. 2c VI & VII Gym. III & IV
Sophomore	D. A. 2c VI	Engl. 2c III & IV Agron. 4 Chem. 1c V, VI, VII	Engl. 2c III & IV Agron. 4 Chem. 1c V	Chem. 1c VI & VII Drawing 2c	Engl. 2c III & IV Agron. 4 Chem. 1c V D. A. 4c VI	Engl. 2c III & IV Agron. 3 Chem. 1c VI & VII

Junior	Bot. 4 D. A. 8 VI Zool. 3 A. E. 8	Ento. 1 German 2c Chem. 14 Math. 6c Ped. 3 Engl. 8c V & VI	Bot. 4 German 2c Math. 6c Ped. 3 Engl. 8c V & VI	Ento. 1 German 2c Chem. 14 Math. 6c Ped. 3 Engl. 8c V & VI	Rural Prob. Engl. 7 Latin 2c E. E. 7c A. E. 13	Ento. 1 Drawing 3c German 2c Chem. 14 Math. 6c Ped. 3 Engl. 8c V & VI
Senior	Rural Prob. Ento. 5 Chem. 5 D. S. 21	Rural Prob. Engl. 7 Latin 2c M. E. 13c A. E. 12 E. E. 13	Rural Prob. Engl. 7 Latin 2c M. E. 13c A. E. 12 E. E. 13	Engl. 7 Latin 2c E. E. 7c A. E. 14c	Rural Prob. Engl. 7 Latin 2c M. E. 13c A. E. 12	Rural Prob. Engl. 7 Latin 2c M. E. 13c A. E. 12
Freshman	Engl. 1c V & VI Bot. 1a II Math. 2e I Pub. Spk. 1c III & IV	Engl. 1c V & VI Math. 2e I Pub. Spk. 1c II	Bot. 1a II Math. 2e I Pub. Spk. 1c III & IV	Engl. 1c V & VI Math. 2e I Pub. Spk. 1c III & IV	Engl. 1c V & VI Math. 2e I	Engl. 1c V & VI Bot. 1a II Math. 2c I
Sophomore ..	D. A. 2c V	Engl. 2c II Chem. 1c I Phys. 2 Germ. 1c VI & VII Drawing 5	Engl. 2c II A. E. 17b Germ. 1c VI & VII D. A. 4c V	Chem. 1c I Phys. 2 Drawing 2c (Pr)	Engl. 2c II A. E. 17b Germ. 1c VI & VII D. S. 2b	Engl. 2c II Chem. 1c I Phys. 2 Germ. 1c VI & VII Drawing 5
Junior	Bot. 4 D. A. 8 VI Zool. 3	Chem. 10 D. S. 6c (Pr) Engl. 9c M. E. 11b	Chem. 10 D. S. 6c Engl. 9c M. E. 12 C. E. 5 E. E. 5	Chem. 10 D. S. 6c (Pr) M. E. 11b	Chem. 10 Entom. 2 Engl. 9c M. E. 12 C. E. 5 E. E. 5	Chem. 10 Drawing 3c (Pr) Engl. 9c
Senior	Ento. 5 Chem. 5 D. A. 14 V	A. H. 7b Hort. 3 Agron. 8b S. S. 8 D. A. 12c M. E. 18 E. E. 14	Military Science D. S. 19c	A. H. 7b Hort. 3 Agron. 8b S. S. 8 D. S. 12c M. E. 18 C. E. 21 E. E. 14	A. H. 7b Hort. 3 Agron. 8b S. S. 8 D. S. 19c	A. H. 7b Hort. 3 Agron. 8b S. S. 8 D. S. 12c M. E. 18 E. E. 15

IV-10:45			
Freshman	Engl. 1c VII Agron. 1 Phys. 1 IV Math. 1c VI & VII Math. 2c III	Military Science Drawing 1c V	Engl. 1c VII Agron. 1 Phys. 1 IV Math. 2c III
Sophomore	D. A. 2c V Engl. 2c I Chem. 1c II Math. 4b VI German 1c V Hist. 3	Chem. 1c II Math. 4b VI Drawing 2c (Pr)	Engl. 2c I Chem. 1c II Math. 4b VI German 1c V Hist. 3
Junior	Bot. 5 (Pr) D. S. 6c (Pr) Zool. 3 C. E. 6	Bot. 5 (Pr) D. S. 6c (Pr) Zool. 3 C. E. 6	Bot. 5 (Pr) Drawing 3c (Pr) C. E. 6
Senior	Col. & Exp. Sta. S. S. 7 D. S. 14c C. E. 20	Vet. Med. 2 S. S. 7 Chem. 5 Hort. 5 D. S. 21 E. E. 12 C. E. 19b	Col. & Exp. Sta. S. S. 7 C. E. 20 D. A. 10d V (Pr)
V-11:40			
Freshman	Math. 1c III & IV Gym. 1 & II Pub. Spk. 1c VI & VII	Gym. I & II Math. 1c III & IV Pub. Spk. 1c VI & VII	Gym. I & II Math. 1c III & IV Pub. Spk. 1c VI & VII
Sophomore	A. H. 2b Gym. Zool. 6	A. H. 2b Gym. Zool. 6	Gym. Zool. 6
Junior	Bot. 5 (Pr) Chem. 16 Pub. Spk. 4	Bot. 5 (Pr) Chem. 16 Pub. Spk. 4	Bot. 5 (Pr) Chem. 16 Pub. Spk. 4
Senior	Dairy. 8 Ento. 5 Hist. 4	Dairy. 8 A. H. 11 Ento. 5 Hist. 4	A. H. 11 Ento. 5 D. A. 10d V (Pr) Hist. 4

CHAPEL

CHAPEL

VI—1:30-3:30				
Freshman	Bot. 1a I Agron. 1 II Phys. 1 M. E. 2 D. A. 1c VI & VII	Bot. 1a II D. A. 1c V	Bot. 1a I M. E. 2 D. A. 1c VI & VII	Bot. 1a VI D. A. 1c V
Sophomore	Phys. 2 D. S. 2b V Zool. 6	Agron. 4 Chem. 1c VI & VII A. E. 17b	Agron. 3 C. E. 1 D. S. 2b VI	A. H. 2b Chem. 1c VI & VII A. E. 17b
Junior	Chem. 16 M. E. 4 C. E. 5	Ento. 1 Bact. 5 Chem. 14 E. E. 3	Chem. 16 M. E. 4 A. E. 9	Ento. 1 Bact. 5 Chem. 14 M. E. 10c C. E. 5
Senior	Dairy. 8 Agron. 8b A. H. 11 Bot. 9 D. A. 10a V M. E. 13c E. E. 16	Agron. 6 Dairy. 7 D. S. 14c E. E. 7c C. E. 13b	Col. & Exp. Sta. A. H. 7b Hort. 3 Bact. 3 Chem. 5 D. A. 10a VI E. E. 12 C. E. 13b	Col. & Exp. Sta. Vet. Med. 2 Hort. 8 Bact. 3 D. A. 14 VI E. E. 16
VII—3:30-5:30				
Freshman	Bot. 1a II Agron. 1 I M. E. 2	Chem. 1c V D. A. 8 VII	M. E. 2	Bot. 1a VI
Sophomore	Phys. 2 D. S. 2b V Zool. 6	Chem. 1c V D. A. 8 VII	C. E. 1 D. S. 2b VI	Chem. 1c I & II M. E. 6c D. S. 2b VII
Junior	Ento. 2 M. E. 4 C. E. 5		M. E. 4 A. E. 9	D. A. 8 V M. E. 9b E. E. 5 A. E. 7
Senior	Dairy. 8 Bot. 9 M. E. 13c E. E. 16	D. S. 21	Dairy. 8 D. A. 10a VI E. E. 12 C. E. 13b	D. S. 14c
All		Drill	Music	Drill
				Music

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